

HP Professional

THE INDEPENDENT MAGAZINE FOR NEWWAVE COMPUTING ▲ VOL.6 NO.3

MARCH 1992 ▲

NEW WAVE

Open Systems

- ▶ HP OpenMail:
An Open Systems
Success Story
- ▶ An Interview With
HP's Bernard Guidon
On Commercial UNIX

SPECIAL REPORT:

DOWNSIZING

- ▶ HP Redefines
The Buzzword
Of The '90s
- ▶ The Right Tools
Help Complete
The Tasks At Hand



WHEN
YOU
NEED
THE
FUTURE...NOW.



At Infotek Systems the future is here. Now. And always has been. Ever since our first enhancement products for Hewlett-Packard computers more than 14 years ago. And we haven't looked back since.

Infotek Systems is the leader in developing and introducing innovative products to the marketplace ahead of the competition. Time and time again. We introduced the first high density 1MB memory board for HP workstations in 1983. And in late 1990 we released a 32MB module for the HP 9000 Series 345/375 and HP/Apollo 400.

We are first in providing you with cutting-edge technology that increases workstation productivity and efficiency. That opens new windows for you. New markets. And new opportunities. Faster.

When it comes to state-of-the-art workstation enhancement products, you need innovation, not imitation.

You need Infotek Systems. Get to know us.

For more information call toll free **1-800-767-1084**. Find out how we can open windows of innovation to enhance your workstations and bring you the future now—when you really need it.

MEMORY FOR YOUR HP APOLLO 700

Infotek continues its innovative ways with four new products:

EM700 memory modules provide users of the new HP 700 Series with a cost-effective alternative to Hewlett-Packard's RAM. Available soon in 16 megabyte module sets, the EM700+16 gives you the memory you need at a price you can live with.

Also on the horizon are memory boards for Apollo DN3500, DN4000 and DN4500 workstations; Digital Audio Tape backup systems; and memory for your LaserJet printer. Call us today for information about our advanced workstation enhancements.



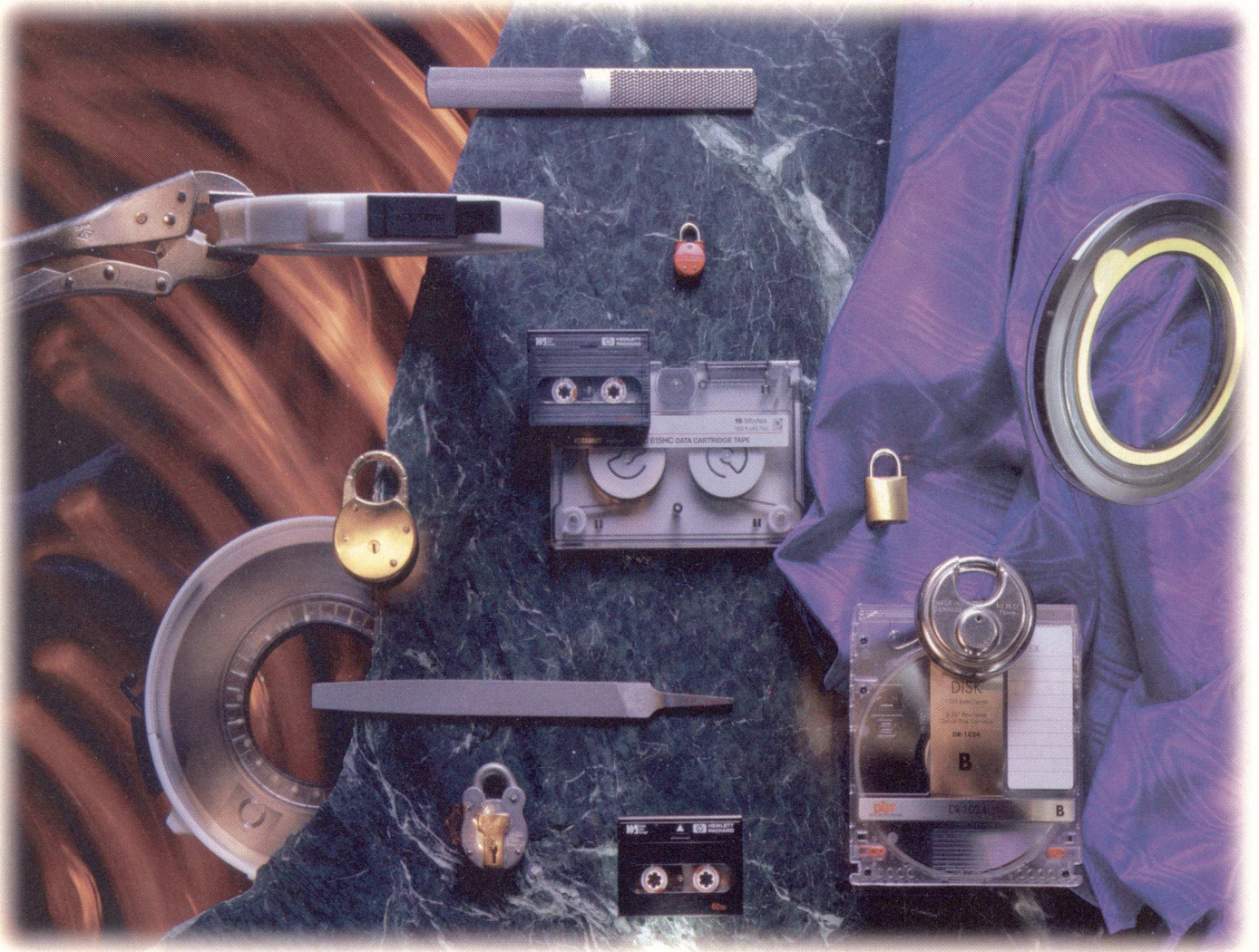
**INFOTEK
SYSTEMS**

"The Enhancement Company"

625 South Lincoln, Suite 204, Steamboat Springs, CO 80487 TEL: 1-800-767-1084; FAX: 303-879-1195

CIRCLE 181 ON READER CARD

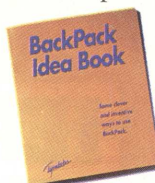
BackPack from Tymlabs. You simply can't buy a more sophisticated and reliable HP 3000 backup utility at a better price. Period.



Try it free for 30 days and you'll understand why.

BackPack offers dozens of features that can help you save time, reduce tape usage, perform backups unattended, and use a variety of backup media.

No wonder it's the hands-down price/performance leader in HP 3000 backup utilities. Call today for your **free** evaluation copy, or our BackPack Idea Book.



What have you got to lose?
1-800-767-0611.

Tymlabs®

Tymlabs Corporation
811 Barton Springs Road
Austin, Texas 78704 USA
(512) 479-0611
Fax (512) 479-0735

Tymlabs (UK) Ltd.
Munro House, 9 Trafalgar Way
Bar Hill, Cambridge, UK CB3 8SQ
0954-780088
Fax 0954-780001



BackPack is a registered trademark of Tymlabs Corporation.
Call for information about our worldwide distributor network.

CIRCLE 456 ON READER CARD

REACHING beyond...

See us at ICMS Booth # 45/46

TO deliver down-to-EARTH solutions

FOR THE PAST 12 YEARS, IEM HAS DELIVERED SOLUTIONS OF EXCEPTIONAL QUALITY. AS THE MANUFACTURER OF THE LARGEST LINE OF HP third-party peripherals, IEM OFFERS PRODUCTS FOR HP 1000, 3000 AND 9000 COMPUTERS, IN BOTH HP-IB AND SCSI INTERFACES, DESIGNED WITH THE NEEDS OF THE END USER IN MIND.

HERE'S JUST A SAMPLE OF WHAT WE HAVE TO OFFER, ALL BACKED BY IEM'S EXCELLENT SUPPORT:

- 8MM High Capacity Tape Backup Systems AND AUTOFEEDERS
- 4MM DDS DAT Backup Systems
- QUARTER-INCH CARTRIDGE (QIC) TAPE DRIVES
- REWRITABLE Optical Disk Drives AND LIBRARY SYSTEM CONTROLLERS
- WORM Optical Disk Drives
- Fixed WINCHESTER Disk Drives
- MEMORY BOARDS & INTERFACE CARDS
- AND MORE!

**ON-SITE SERVICE
THROUGHOUT
THE UNITED STATES!**



One Source, Many Solutions

IEM is the manufacturer of the largest line of HP third-party peripherals.

Corporate Headquarters

IEM, Inc. • P.O. Box 1889

Fort Collins, CO 80522 USA

(1) 303-221-3005 • Fax: (1) 303-221-1909

Toll-free (U.S. and Canada): 800-321-4671



IEM (UK)

Colorado House

Cromwell Park, Banbury Road

Chipping Norton, Oxfordshire OX7 5SR

(44) 0608 645000 • Fax: (44) 0608 645155

For information about IEM representatives outside the United States, please contact IEM.

CIRCLE 122 ON READER CARD

© 1991 Anis, Inc. F3.192

C O N T E N T S

MARCH 1992

VOL. 6, NO. 3

28 ►

It's In The Mail...

By Paula Jacobs

Thanks to some perceptive licensing and marketing, HP OpenMail today is considered an industry-leading open systems-based mail engine. By holding to its promise of providing multivendor portability, HP has positioned OpenMail as a potential E-mail standard.

36 ►

What Is Commercial UNIX, Anyway?

By Andy Feibus

In an exclusive interview, Bernard Guidon, general manager of Hewlett-Packard's General Systems Division, discusses commercial UNIX, open systems in commercial environments, and HP's UNIX strategy.

SPECIAL REPORT

DOWNSIZING

48 ►

Mainframe Alternative

By Tim Cahoon

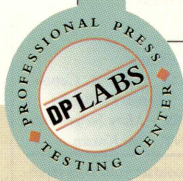
More and more MIS managers today are wrestling with the issues associated with downsizing. With an aggressive new program designed to revamp costly mainframe environments, HP is redefining the buzzword of the '90s.

52 ►

The Tasks At Hand

By Gordon McLachlan

Downsizing can mean different things to different people. Whether adding a server to complement your mainframe, or doing a full-blown migration, choosing the right tools and technologies will underscore the bottom line.



FROM THE LAB

Amerigo Vespucci, Eat Your Heart Out!

By David B. Miller

The World Is Your Information Oyster With The MapInfo GIS..... 58

As Easy As 1-2-3

By Michele Petrovsky

Lotus 1-2-3 For HP-UX Turns Calculations Into Child's Play 62

C O L U M N S

Objectively Speaking:

Objects In Design

By Richard Riehle

State And Class And Their Roles In Object-Oriented Programming 70

Managing Your HP 3000:

A Toolset For All Systems

By John P. Burke

The Migration Toolset—An Indispensable Product For All Classic Owners 74

HP-UX: A Developer's Aid

By Andy Feibus

If You Develop Applications, You Should Get Ahold Of IEEE 1003.2—POSIX.2 82

D E P A R T M E N T S

Editorial 8

Industry Watch/Europe 10

News & Trends 14

Product Watch 20

Advertiser Information 80

New Products 84

Product Showcase 92

Career Opportunities 94

Software Directory 95

Advertiser Index 96

Cover Photo:

Flip Chalfant/The Image Bank

LAN-HO!

Total HP Connectivity One Product, Same Price



Before you embark on a journey into the maze of LAN connections, look to MiniSoft 92 terminal emulation for complete PC-to-host connectivity.

Covering all industry-standard local area networks, MiniSoft 92 combines all the connectivity software into a single package. It provides you with the simplest, most direct route available, creating a friendly landscape of LAN connections.

So why pay extra for LAN connectivity when you can get the same LAN support in ONE package with terminal emulation. MiniSoft 92 provides connections for Telnet, Novell, NS, TCP/IP, LanManager, Banyan and many more. It also provides all the terminal emulation features upon which thousands of MiniSoft customers have come to rely.

Whether you are making serial or LAN connections in Windows or DOS environments, MiniSoft 92 will get you where you need to be at just \$129 per copy. So call 1-800/682-0200 now to receive a free evaluation copy!



MINISOFT

MiniSoft Inc.

13617 State Highway 9
Snohomish, WA 98290-8721
206/668-5187, Fax 206/668-2435
800/682-0200

Bahnhofstrasse 46
CH-6048
Horw, Switzerland
+41/41.47.2320
Fax +41/41.47.3866

MiniSoft 92 is a registered trademark of MiniSoft Inc. All other trademarks are the property of their respective owners.

CIRCLE 472 ON READER CARD

UNIX is a registered trademark of AT&T in the U.S.A. and in other countries.

MS-DOS is a trademark of Microsoft.

Macintosh is a trademark of Apple Computer Inc.

X Window System is a trademark of MIT.

Microsoft is a registered trademark of Microsoft Corp.

NewWave is a trademark of Hewlett-Packard Co.

HP Professional

Publisher: Carl B. Marbach
Editorial Director: R.D. Mallery
Associate Publisher: Leslie Ringe

Editorial

MANAGING EDITOR Grant Evans
ASSOCIATE EDITOR Andrea J. Zavod
SENIOR TECHNICAL EDITOR David B. Miller
TECHNICAL EDITOR Bill Sharp
APOLLO EDITOR Fred Mallett
FIELD SERVICE EDITOR Ron Levine
HP 3000 EDITOR John P. Burke
INTERNATIONAL EDITOR Marsha Johnston
NETWORKING EDITOR Tim Cahoon
PC EDITOR Miles B. Kehoe
SOFTWARE ENGINEERING EDITOR Richard Riehle
UNIX EDITOR Andy Feibus
EDITORIAL ASSISTANT Stephen G. McDowell
CONTRIBUTORS Paula Jacobs, Gordon McLachlan

DP Laboratory and Testing Center

MANAGER David B. Miller
TECHNICAL EDITORS Marty Levine, Charlie Simpson
ASSISTANT LAB MANAGER Anne Schrauger
REVIEW EDITORS John P. Burke, Tom Davis, Jerry Fink, Tony Fiorito, Miles B. Kehoe, Joel Martin, Michele Petrovsky, Barry Sobel
MIS SOFTWARE MANAGER Bonnie Auclair

Design & Production

ART DIRECTOR Al Feuerstein
DESIGN/PRODUCTION MANAGER Jean Lait
TYPE/PRODUCTION COORD. MaryEllen Coccimiglio
ADVERTISING TRAFFIC MANAGER Lori Goodson
ADVERTISING TRAFFIC ASSISTANT Teri Campbell
PROMOTIONS MANAGER Tim Kraft
GRAPHIC DESIGNERS Mike Cousart, Thomas Owen, Sue Ann Rainey, Jack Rotoli

Circulation

CIRCULATION DIRECTOR Carrie Eisenhandler
FULFILLMENT MANAGER Marjorie Pitrone
CIRCULATION AUDIT MANAGER Rebecca Schaeffer
DATABASE MANAGER Phyllis Chandler

Marketing

SENIOR PROMOTION WRITERS James Jordan, Lori Solomoto
TRADE SHOW MANAGER Peg Schmidt

PROFESSIONAL PRESS, INC.

PRESIDENT Carl B. Marbach
VICE PRESIDENT R.D. Mallery
VICE PRESIDENT Peg Leiby
VICE PRESIDENT Helen B. Marbach
DIRECTOR OF SALES Jeffrey Berman
CORPORATE DIRECTOR
OF MARKETING Mary Wardlaw
EXECUTIVE EDITOR Linda DiBasio
EXECUTIVE DESIGN DIRECTOR Leslie A. Canuso
CHIEF FINANCIAL OFFICER Thomas C. Breslin
HUMAN RESOURCES MANAGER Mary Steigenwalt
ASSISTANT TO THE PRESIDENT Jan Krusen

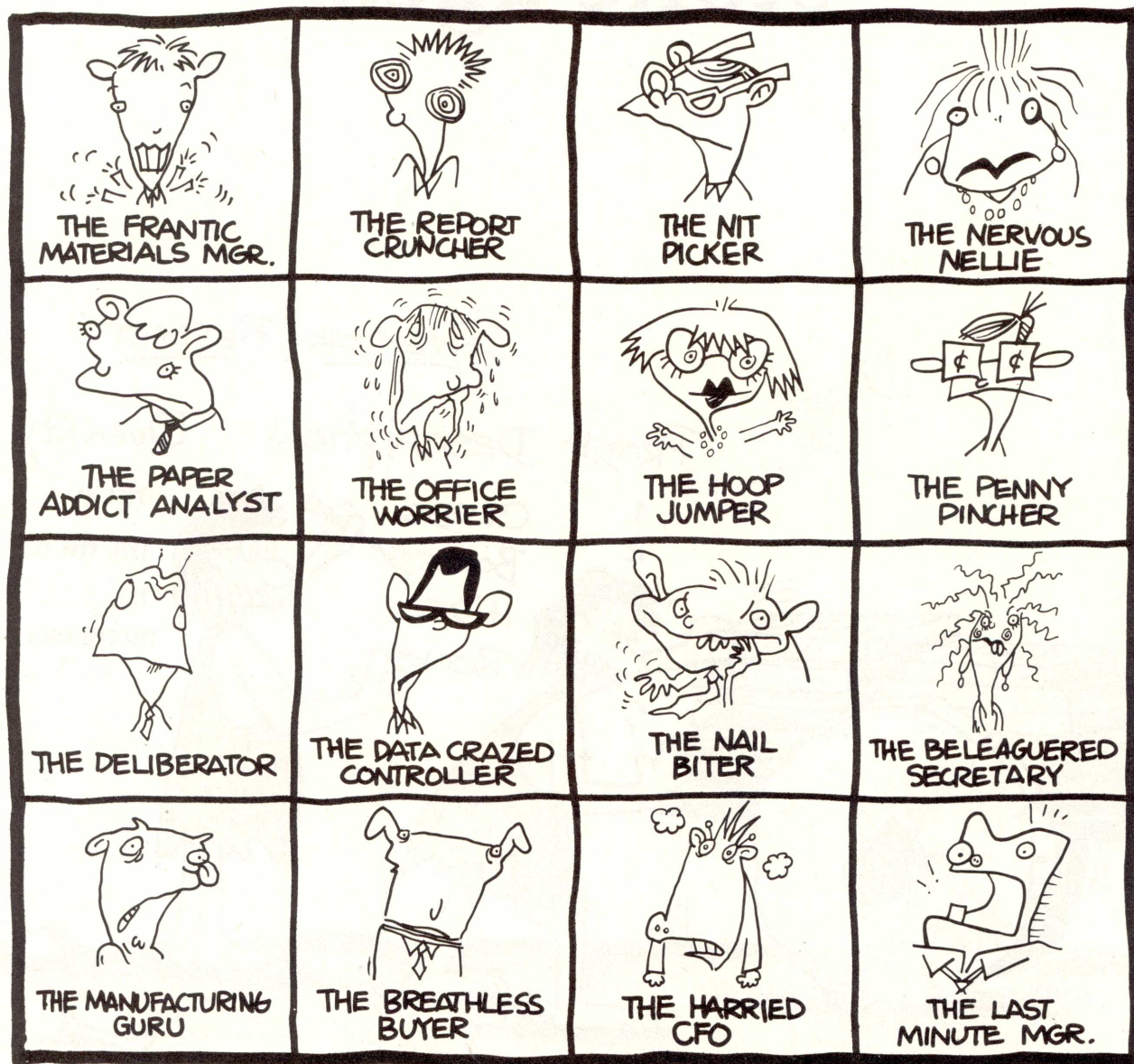
For more information on how to contact your sales representative, see page 96. For subscription information and address changes, call (215) 957-4269. Editorial, advertising sales and executive offices at 101 Witmer Rd., Horsham, PA 19044 ■ (215) 957-1500 Corporate FAX (215) 957-1050. To reach staff listed on masthead via UUNET, send MAIL to: LAST NAME@procast.propress.com

HP PROFESSIONAL ISSN 0986145X is published monthly by Professional Press, Inc., 101 Witmer Rd., Horsham, PA 19044. Subscriptions are complimentary for qualified U.S. and Canadian sites. Single copy price, including postage \$4. One year subscription rate \$30 U.S. and Canada; \$60 foreign. All orders must be prepaid. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, Fax (717) 560-2023. Second Class postage paid at Horsham, PA 19044, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. 616, 101 Witmer Rd., Horsham, PA 19044. COPYRIGHT © 1992 by Professional Press, Inc. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Professional Press, Inc. at the sole risk of the sender. Neither Professional Press, Inc. nor HP PROFESSIONAL magazine are responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

BPA

REVEAL™ Helps You Get Demanding Users Off Your Back.

See us at Booth #30 at Interex



And On Your Side.

They're knocking down your door, you're cranking out more reports.

Get out of the paper crunch and into the 21st century with REVEAL, the unique new system that lets HP 3000 offices go "paperless."

With REVEAL users are able to view reports then print the exact pages they need. Directly from any PC or terminal in your system.

Scan left, right, up or down on the monitor with REVEAL and pull up information on demand with Last Page Search, String Search and Index Search. Different

sections can be viewed simultaneously with Windows and 132 columns viewing is activated with just two keystrokes.

If you're crazed, dazed or even slightly fazed, find out how REVEAL can make your life a lot easier. We'll be happy to send more information or give you a free demo if you call us at 1-800-878-6746.



International Plaza, Suite 635
7900 International Drive, Bloomington, MN 55425
PHONE: 1-800-878-6746 FAX: 612-854-3072

Australia Facer Information Design +61/2.484.3979 • Holland And Belgium Samco Automation B.V. +31/4242.15655
France Proactive Systems s.a. +33/1.49.01.05.00 • United Kingdom CPL Systems LTD. +44/0742.620242
Germany And Switzerland AK-Industrieinformatik GmbH +49/9.31.274661 • Austria And Eastern Europe Office Data +43/222.587.2739

© 1991 O'PIN SYSTEMS

CIRCLE 258 ON READER CARD

Why be stuck in the stone age...



when our information management tools can help you discover the future?

Any job can be more difficult if you don't have the right tools. Without the right software, you may think your information management system came from the stone age. With proper tools, you can do your job more efficiently and reap the benefits of higher productivity.

At NSD, we develop software tools to help meet the challenges facing data centers and MIS departments. All of our products are designed to save time and money, and make the most of your available resources. Our products include:

JobRescue™, our flagship product, is a sophisticated job management and error detection program. JobRescue eliminates \$STDLIST printing and review by automatically detecting errors.

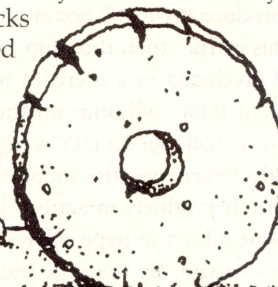
Job Scheduling automates the task of scheduling batch processing activities. You can plan long- or short-term schedules, and regular or one-time activities.

Report Management allows you to access reports on-line so that you can review, save and manage your reports without printing a single page. With Report Management, you have control over report storage, retrieval, access, printing and distribution.

TranSpooler™ is a powerful, bi-directional spoolfile relocation program providing manual or automatic transfer between MPE systems or between MPE and HP-UX systems. This tool even transfers to IBM hosts and broadcasts to multiple nodes from a single node.

InterTask™ is a client/server facility allowing an HP3000 MPE system to invoke HP-UX processes on remote HP9000 nodes over a TCP/IP network. Integrate MPE and HP-UX scheduling with your existing MPE scheduling tools.

TimeSync™ is a software utility that automatically synchronizes the internal clocks on various types of networked computers to within one millisecond of each other. Available for a wide range of operating systems, this tool currently supports Network Services, ARPA Services, LAN Manager and LAN Manager/X protocols.



At NSD, our standards aren't set in stone. We constantly raise them. We strive to develop superior products to help you meet the challenges of information management now, and into the future. So come out of the information management stone age, and discover the tools that will make your resources work harder for you.

Call today for more product information.

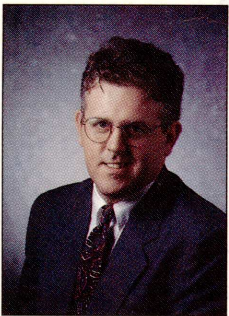
1.800.538.3818

See us at ICMS Booth # 32/33



NSD

Coming To A CPU Near You...



By Grant Evans

I originally planned to use this space to talk about two topics that are garnering a great deal of coverage these days — open systems and downsizing. But the past week (late February as I write) has been pretty exciting for those of us covering the HP market. And as we prepare to put this issue to bed, I can't help but reflect on some of the interesting news that has crossed our desks in recent days.

HP's announcement of an impressive 49 percent surge in first quarter earnings caught most of us — including the omnipotent Wall Street gurus — completely off-guard. The result was a nice little 12-point jump in HP's common stock which no doubt left the company's stockholders (not to mention Mr. Packard) smiling through the week-end. (For more on this, see this issue's *News & Trends*.)

But more interesting from an industry-wide perspective was HP's early announcement of the next generation of PA-RISC chips — which we are told will begin showing up in HP 3000 and 9000 systems before the end of the year.

According to HP, the new microprocessor will boost system performance by an impressive 50 percent and is expected to produce PA-RISC boxes running in the 120-SPECmark range. If this is true, then this chip (which HP claims to have designed and produced in a mere 13 months) will not only eclipse any current RISC offerings on the market today, but could pose a serious challenge to DEC's highly-anticipated Alpha products.

However, because mere mortals like you and I have yet to see such products in action, it's hard to tell how much of the pre-introduction hype offered by HP, DEC and even Sun is just that — hype. By the time these things get to market, they may be considerably slower.

Still, the battles of silicon one-upmanship waged at the recent International Solid State Circuits Conference in San Francisco were entertaining to say the least. Before the conference began, DEC was expected to firmly establish itself as the leader in the new chip race by announcing specifications of its forthcoming microprocessor. In the weeks prior to the announcement, we had heard that none other than Cray Research had signed up as an Alpha licensee.

Not to be outdone, HP announced its own new RISC chip — earlier than expected — and labeled DEC's Alpha performance numbers "unachievable." While its 100-MHz chip may

not look as fast as DEC's 200-MHz Alpha chip on paper, HP maintains that the PA-RISC 7100 will match or exceed Alpha performance in actual use.

Sun, meanwhile, announced its own entrant in the derby, and also made a claim that its new chip will outperform the Alpha products in real-world applications. Sun's 50 MHz SuperSPARC chip, produced under license by Texas Instruments, is said to run at a peak speed of 150 MIPS — about four times as fast as the company's current offerings. After the Alpha session in San Francisco, Sun characterized DEC's project as a desperate move by a hurting company.

(From what I hear about the scalability of Sun's SPARC architecture, *they* could be the ones announcing products out of desperation in the near future.)

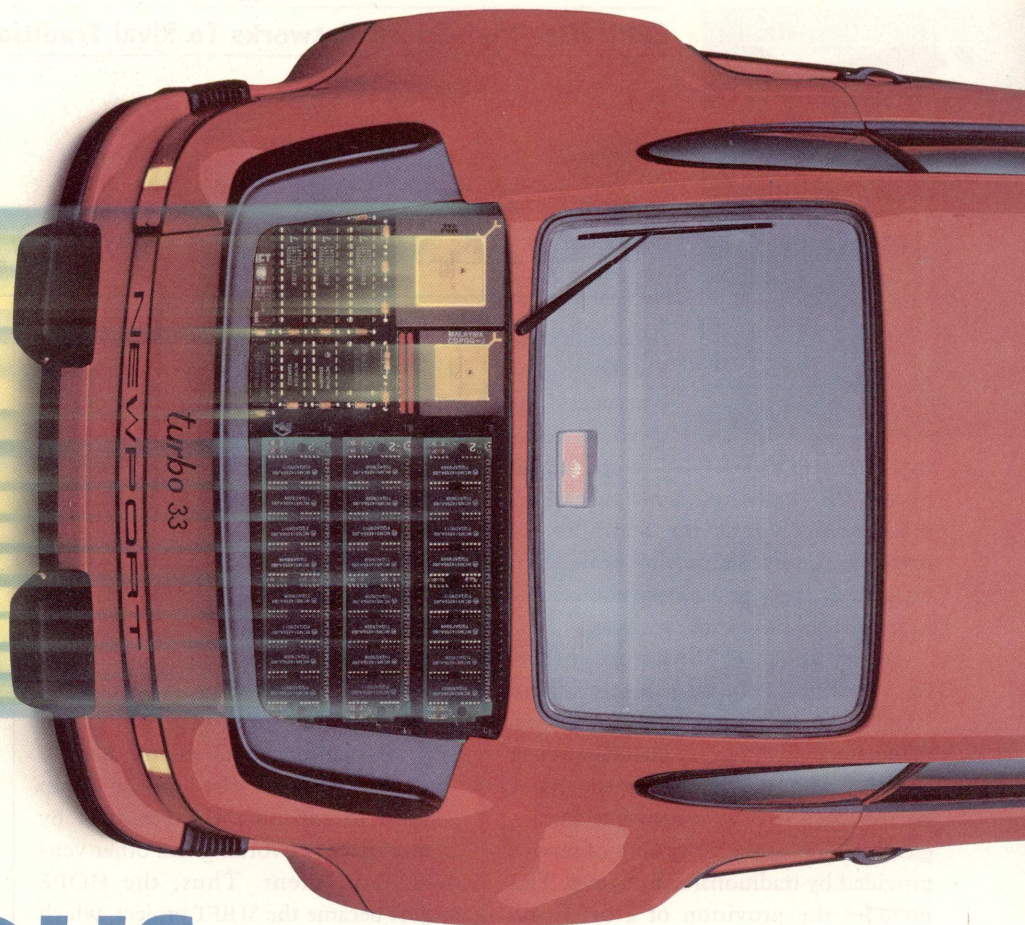
Suddenly, DEC and its Alpha began to assume a remarkable resemblance to Democratic presidential hopeful Paul Tsongas in the weeks preceding the New Hampshire primary — with all the other contenders taking aim at the perceived front runner from Massachusetts.

Flying fur aside, the RISC wars are shaping up as the spectator sport to fill the time between the Albertville and Barcelona Olympiads. But, as we've seen in the past, it's not always the fastest and most advanced machine that wins over the most users. Software, price/performance and numerous other intangibles play important roles as well. Let's wait until we see the hardware with these things inside.

In light of all the recent noise being made about America's lack of competitiveness in the global market and the debates over the perceived "loss" of the country's technological edge, it's certainly reassuring to see the world's top three workstation vendors — all American — duking it out with new technologies. I can't wait to see what products come around as a result.

A handwritten signature in black ink, appearing to read "Grant Evans".

TURBO-33 **HP Series 9000** **Accelerator**



SERIOUS ACCELERATION

33 Mhz speed for serious applications.

The TURBO-33 is a 33 Mhz accelerator card for Hewlett Packard Series 9000 computers. The card is compatible with the HP 216, 217, 220, 226, 236, 237, 310 and 320 workstations.

Programs run from 6 to over 100 times faster.

Compatible with Basic and Pascal.

The TURBO-33 is designed for the BASIC and PASCAL systems. No modifications are required for user programs.

Innovation from Newport Digital.

TURBO cards are also available at 25 Mhz and 16 Mhz. All the TURBO cards have a five year warranty.

Call Newport Digital for information on these and other innovative products.

TURBO-33 DELIVERS PERFORMANCE!

Computation Type	Speed Increase
Integer Arithmetic	6 to 8
Real Arithmetic	9 to 50
Real Transcendental	32 to 293

NEWPORT DIGITAL

14731 Franklin Avenue, Suite A
Tustin, California 92680
714-730-3644

TURBO 33, TURBO 25 and TURBO 16 are trademarks of Newport Digital Corporation.

CIRCLE 246 ON READER CARD



INDUSTRY WATCH / EUROPE

Marsha W. Johnston

CERN Uses High-Speed Networks To Rival Traditional Mainframe Power

Workstation Workouts

Because of their inability to support super high-speed networking, HP Apollo DN10000 workstations have been eliminated from an experiment to determine the feasibility of networking workstations to provide an integrated computing service comparable to traditional mainframe services.

A team at CERN (the European Center for Particle Physics Research) in Geneva initiated the Scalable Heterogeneous Integrated Facility (SHIFT) project last year. The goals of the project are:

- To exploit new workstation technologies without losing the quality of service provided by traditional mainframes. This includes the provision of a batch job scheduler, portable UNIX magnetic tape support, and tools for the management of large file bases, including automatic staging of data between disk and tape.
- To develop a processing model that enables systems to be constructed, and that can be smoothly scaled up to provide large integrated facilities or scaled down to provide a system suitable for a small physics department.
- To create a system that can be installed and operated either within a conventional computer center or within a university physics department or other user-operated environment.
- To create an environment that supports any flavor of UNIX and to develop software that is completely portable.

Project HOPE

The team already had been using three 4-cpu DN10000s in an HP-funded CERN project called HOPE, or HP OPAL (Omni-Purpose Apparatus for Large Electron Positron, or LEL) Physics Environment. The goal of the HOPE

project was to demonstrate that a workstation environment can provide reliable batch services. CERN technicians ported a batch software product called NQS, which had been developed for NASA, to the DN10000s and went into production in May 1990.

Erik Jagel, a CERN scientific associate who worked on the project, says that the DN10000s performed well, and by the summer the team felt confident that it could provide batch services for jobs that "didn't require a lot of I/O and that ran in a non-heterogeneous environment."

Once complete, the project group decided to expand the experiment by adding faster networking and other vendors' equipment. Thus, the HOPE project became the SHIFT project, which was entirely funded by CERN.

Bandwidth-Hungry

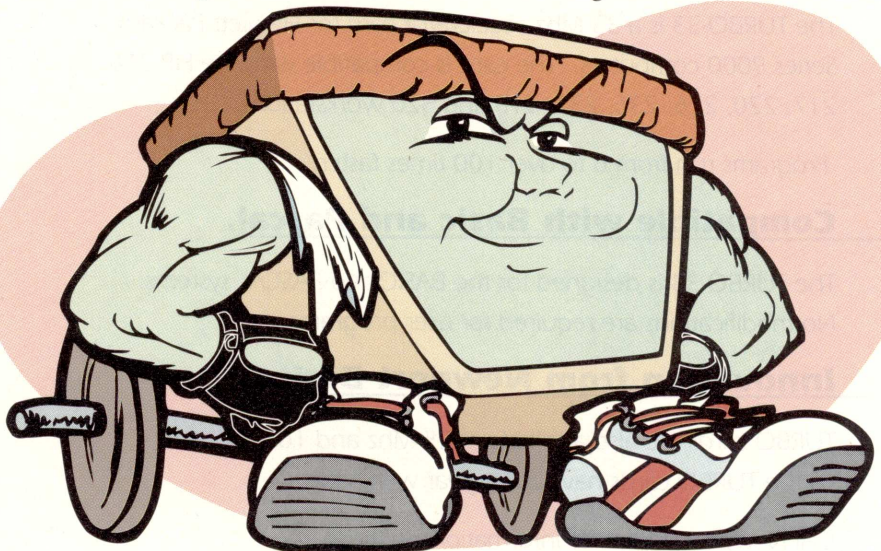
CERN's original motivation behind developing the SHIFT project, says Jagel, was to have the Cray supercomputer on the network generating images and to be able to display them in real-time on the workstations. "The bandwidth needed is in the tens of megabits, and that was not

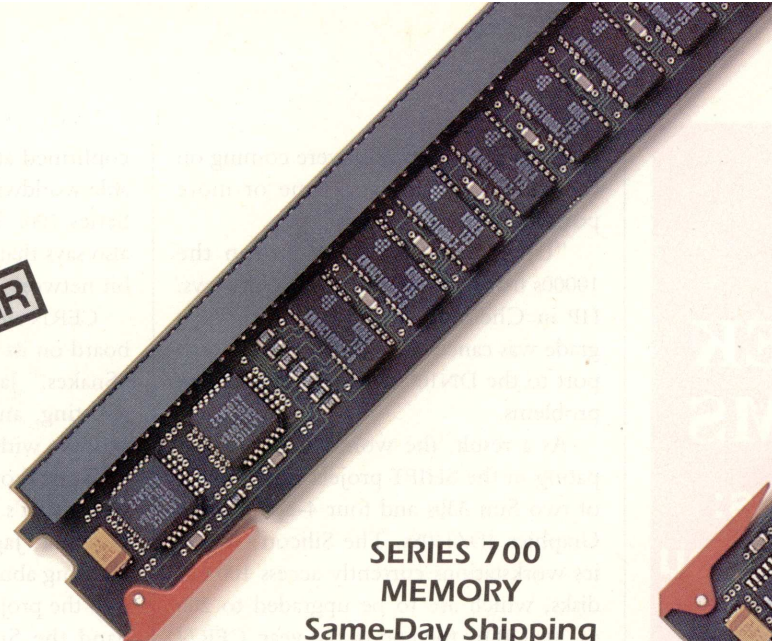
possible three years ago," says Jagel. "But with time, the need for networking has grown. Places like CERN need this kind of networking to feed hungry cpus."

To do that, CERN decided to put the workstations on a gigabit network called Ultranet, which comes from a private company in Silicon Valley. Jagel says HP's Apollo division in Chelmsford, MA was responsible for porting Ultranet to the DN10000s, which required minor modifications to the VME board.

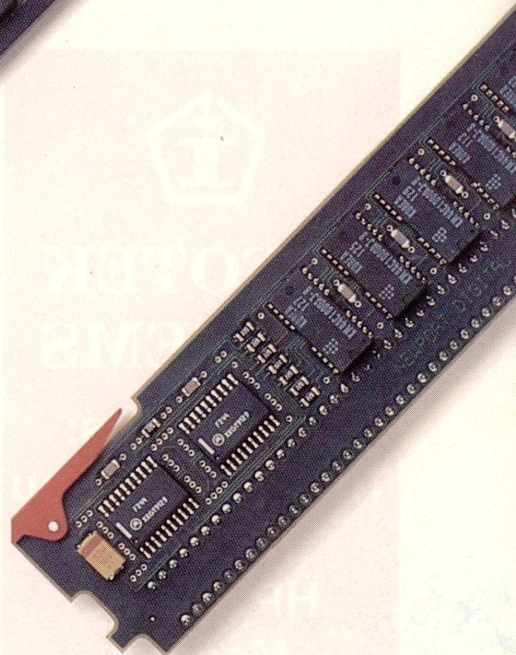
"They did a nice job on the throughput, at 4 MB per second, but the software always would crash the 10000 or force you to reboot the driver. We couldn't use it in a production environment," he says. Although Chelmsford agreed to fix the port, he adds, they wanted "tens of thousands more dollars. Plus, the guy who had done the original port had left, so they said they would have had to re-train someone...."

In the meantime, an upgrade that had been scheduled for last May to double the power of the 10000's cpu was cancelled at the last minute. As a result, the 10000s were becoming less and less interesting and less worth the money





**SERIES 700
MEMORY**
Same-Day Shipping



EXCEPTIONAL MEMORY

Available now from Newport Digital.

We deliver the quality and service you expect from the leader in HP workstation enhancements. Our complete line of TURBO cards and memory products is ready to ship from stock. Order today. Upgrade your system tomorrow!

Superior quality by design.

Every product we make is rigorously tested and guaranteed to meet or beat HP quality... and each is backed with our unconditional lifetime warranty.

Remarkable value guaranteed.

Evaluate any of our memory products in your workstation for 30 days. If you're not completely satisfied, return it without obligation.

CALL TODAY for complete information or to place an order for these and other innovative products from Newport Digital.



Comprehensive Selection

HP Series 9000	MB	1	2	4	8	12	16	32
HP-200/310/320		■	■	■	■			
HP-319				■	■			
HP-330/350/370				■		■		
HP-332				■				
HP-340				■				
HP-345/375/380				■	■		■	■
HP-360				■	■	■	■	
HP-362			■	■	■			
HP-382				■	■		■	
HP-400/425/433				■	■		■	■
HP-425E				■	■		■	
HP-700RX		■	■	■	■			
HP-720/730/750							■	■

NEWPORT DIGITAL
1-800-383-3642

14731 Franklin Avenue, Suite A
Tustin, California 92680
(714) 730-3644



INFOTEK SYSTEMS

**Introduces:
The memory you
need for
HP Apollo
Models:**

720

730

750

425e

382

**For immediate
delivery, call
1 (800) 767-1084**

**For the highest quality,
best service and foremost
technical expertise,**

**INFOTEK
SYSTEMS**

**is the only name you need
to know**

**1475 Pine Grove Road, Suite 205
Steamboat Spgs, CO 80487**

because other machines were coming on the market, having the same or more power per cpu, Jagel says.

"Ultimately, we had to drop the 10000s from the SHIFT project," he says. HP in Chelmsford admits that the upgrade was cancelled and that the Ultranet port to the DN10000s experienced some problems.

As a result, the workstations participating in the SHIFT project now consist of two Sun 330s and four 4-cpu Silicon Graphics 4D/340Ss. The Silicon Graphics workstations currently access 100 GB disks, which are to be upgraded to 200 or 300 GB by the end of the year. CERN also is "definitely interested" in Sun's new multiprocessor machines, says Jagel. Two DECsystem 5000s also have been taken off the Ultranet because of a delay in the port, which is being written by Ultranet itself.

"The number of vendors who are supporting high-speed networking are few," says Jagel. "You've got Silicon Graphics and Sun, and IBM is working very hard to get the RS/6000 going."

The 10000s are still used as a service to CERN physicists, where they handle only the simulation of particle experiments, which don't have a high I/O requirement. "The 10Ks support Ethernet with no bugs, but it's a relatively slow network," says Jagel. "The 10K is so powerful, it chews through the data coming over Ethernet and just waits. That's why we wanted to introduce them onto Ultranet, which is about 40 times faster (than Ethernet)."

"Simulation is an important aspect of the HOPE project, but it's limited because of the I/O problem. If [Ultranet] had been a reliable interface, we could have expanded the types of jobs done on the 10K," Jagel continues. "We could have done data analysis, which is a scientist's bread and butter, but expensive for the data manipulation required."

700 Series Steps Up

From all indications, HP has chosen the HP 9000 Series 700 as the platform from which it will provide high-speed networking. Its new FDDI board, which HP

confirmed at press time would be available worldwide in January 1992, is for the Series 700. The Chelmsford spokesman also says that Ultranet is porting its gigabit network to that platform as well.

CERN already has tested out the FDDI board on its HP 9000 Series 720s, aka the "Snakes." Jagel says the test proved interesting, and that they now await the product with bated breath.

Even though FDDI provides a bandwidth that's only between Ethernet and Ultranet, Jagel says the SHIFT team is thinking about putting an FDDI network into the project. It also would like to expand the Snake's bandwidth by using FDDI on the 16 Snakes it has linked together in another project called the Central Simulation Facility (CSF). The aims of the CSF project bear more resemblance to those of the HOPE project than to SHIFT; its I/O requirements are lower. Nevertheless, "getting FDDI for the Snake would change the work we could do; we could get some types of data analysis," he says. Jagel notes that even FDDI could prove inadequate for certain types of data analysis that are I/O bound.

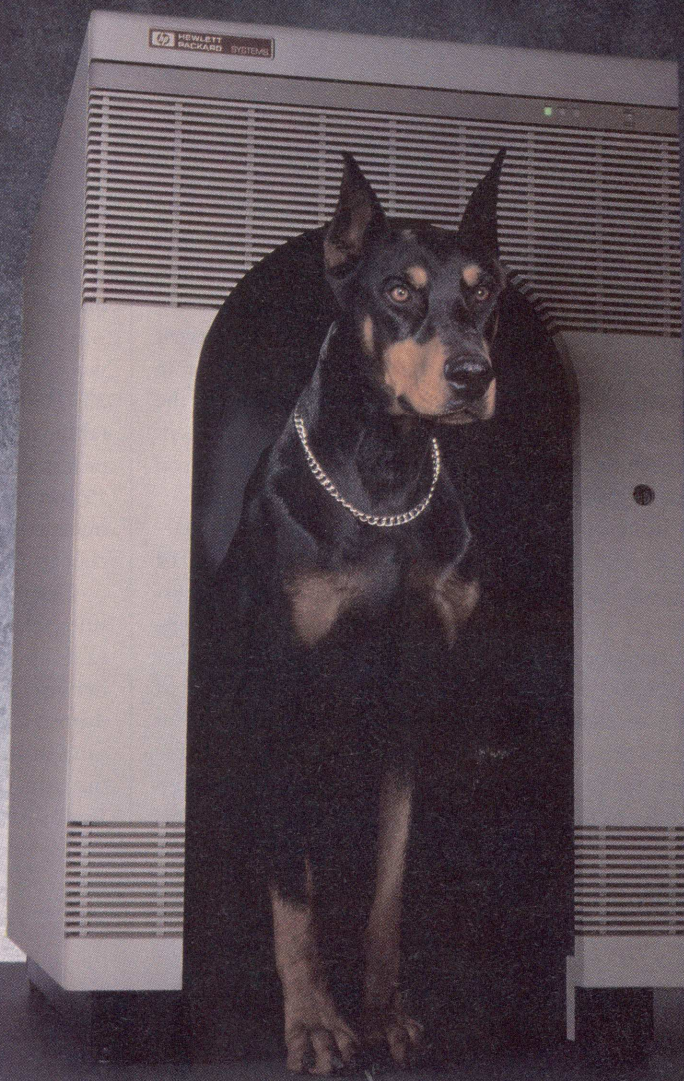
A DN10000 supporting FDDI or another high-speed networking protocol would be interesting for the SHIFT project because a 4-cpu DN10000 has considerable more power than a single Model 720, says Jagel. Still, HP may have done well in choosing the Snake series instead, as the DN10000s are quite expensive to maintain. "By the end of '92, they (DN10000s) are likely to be phased out (at CERN) as a cost-effective way to get cpu power," says Jagel.

Although the DN10000 appears to be outside HP's product strategy, HP says it will incorporate features of the Apollo Domain/OS operating system, including some of the Apollo Display Manager, into HP-UX sometime in 1992. The DN10000's cpu-driven graphics and multiprocessing eventually will be found on the Series 700, the company says.

No wonder, says Jagel. "Even today, Apollo had done things that no company has yet done." ■

CIRCLE 196 ON READER CARD

60-day free trial.



HP GlancePlus. Your watchdog for performance problems.

Without performance tools, even the best managed systems are subject to overload. That's why we're offering HP GlancePlus free for 60 days. So you can see for yourself how easily you can solve problems or avoid them altogether.

HP GlancePlus diagnostic software is one of Hewlett-Packard's family of performance products and services. In its role as watchdog on your HP MPE or HP-UX system, it gives you early warnings of problems.

You see in graphic detail exactly

where work loads are building up to the point where your whole system will start slowing down. So you can take evasive action.

Call us now at 1-800-237-3990, Ext. 2997 to see if you qualify for a free trial.* We're sure you'll feel more secure with HP GlancePlus watching out for your system.



© 1992 Hewlett-Packard Company
*Limited time offer based on product availability.

CIRCLE 199 ON READER CARD

Through The Fog, Light

HP Remains Cautious Despite Earnings Increase And Stock Market Reaction

With the U.S. economy in general remaining stagnant and the computer industry lumbering through its worst slump in ages, HP last month posted an impressive 49 percent increase in earnings for the first quarter of fiscal 1992. Yet despite bucking the industry trend, the company sounded a cautious note in its outlook for the remainder of the year.

Wall Street was more jubilant — by the time HP's offices on the West Coast opened for business, the company's common stock was trading more than five dollars a share higher than the previous day's close. By the end of the day, the stock soared \$9.125 to close at \$73.50 a share in frantic trading on the New York Stock Exchange. By contrast, HP stock closed the week of Dec. 20, 1991 at \$49 a share. In mid-February of '91, it traded in the \$39 to \$47 range.

The news took Wall Street analysts by surprise also. Earlier estimates for HP's first fiscal quarter were much lower than the figures posted. HP President and CEO John Young attributed the results to strong acceptance of some of the company's newer products, including the 700

Series workstation, as well as the phenomenal success of the LaserJet and DeskJet printer lines. Young also cited HP's ongoing efforts to curb the growth of expenses.

Under Young's tenure, HP has successfully streamlined its management, reorganized its sales organization, and reduced its work force. In the past year, HP reduced its ranks by some 3,300 employees through voluntary severance. According to HP, the addition of 1,800 employees through the acquisition of Avantek only increased overall employment for the quarter by 700 people to 89,700.

For the quarter ending Jan. 31, HP reported a robust 49 percent increase in net earnings, a 56 percent increase in earnings from operations and a 13 percent increase in net revenues. Orders for the quarter grew by 13 percent over the first quarter of fiscal 1991.

Net earnings for the quarter totaled \$306 million, or \$1.21 per share on approximately 253 million shares outstanding. Analysts had earlier projected HP earnings at about 85 cents per share. For the first quarter last year, the company posted net earnings of \$205 million, or 83 cents

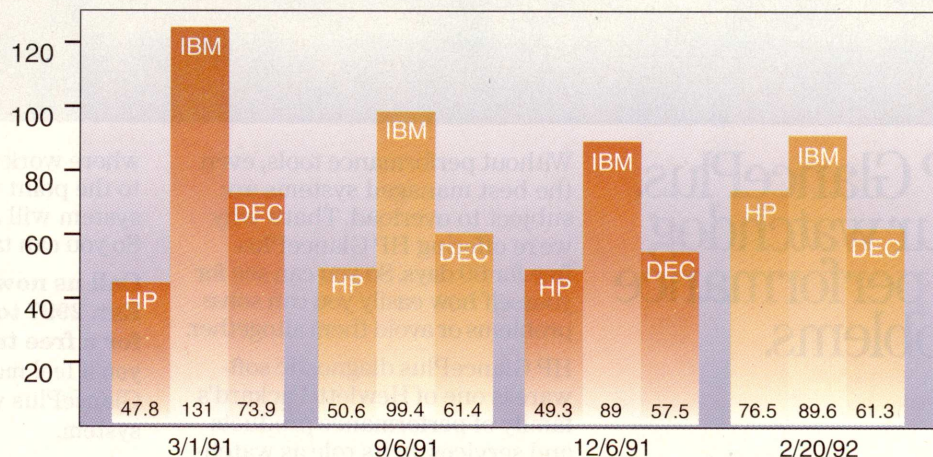
per share. Net revenues totaled \$3.9 billion, compared with \$3.4 billion for the first quarter last year.

Orders for the quarter were \$4.2 billion, up from \$3.7 billion for the comparable quarter last year. U.S. orders totaled \$1.8 billion, up 15 percent, while orders from outside the U.S. grew 12 percent to \$2.4 billion.

Despite the stellar fiscal results, HP officials remained cautious about future quarters because of the uncertain economic climate and slower growth in some key markets outside the U.S. — *Grant Evans, Managing Editor*

Narrowing The Gap

Closing Prices Of Computer Stocks



Dataram makes computer memory. But we deliver customer satisfaction.



We go out of our way to help you.

By offering the highest quality memory to let you unlock all the power and performance your HP 9000 340-380, 400 and 700 Series, and Apollo DN2500-5500 workstations have to offer.

And by delivering the very best, quickest response when you do business with us. Not just in how we design and make HP/Apollo upgrades for you, but in the way we price, sell and—after the sale—deliver and support them.

We can put new Dataram boards into your hands within 24 hours. Anywhere in the country.

Boards from 1MB up to 32MB, available at prices that beat HP by 30% or more. All fully HP-compatible and built with the same uncompromising quality.

No matter if you're already a Dataram customer or coming to us for the first time, we stand squarely behind our upgrades—and you.

Now and in the future, for as long as your computer exists and operates, we deliver on our:

- Lifetime guarantee
- Free trial period
- Express spares
- Service-call expense reimbursement
- Dial-in assistance
- Trade in/up
- Technical support



As the world's leading supplier of memory, we produce add-ins for HP/Apollo, DEC, Sun, Silicon Graphics, IBM and DG computers.

The right products, at the right price. Right away.

So call **1-800-DATARAM** today and ask us to quote on the memory you're planning to buy.

DATARAM

P.O. Box 7528, Princeton, NJ 08543-7528

Satisfying our customers sets us apart.

CIRCLE 240 ON READER CARD

PA-RISC's Next Generation Arrives

New Chip Said To Increase System Performance By More Than 50 Percent

Let it be known: For HP's Precision Architecture-RISC (PA-RISC) technology, the future is now. And it's a lot faster, too.

HP recently announced the latest version of its RISC microprocessor, PA-RISC 7100, and said that the new chips will begin shipping in computer systems before the end of this year. The new PA-RISC chip is expected to boost system performance by more than 50 percent, and offer system speeds up to five times faster than existing systems from competitors.

Based on a single-chip design which integrates the CPU and floating-point unit on a single chip, the PA-RISC 7100 runs at frequencies up to 100 MHz. By combining the two functions on single chip, HP will save board space and be able to lower the cost of future PA-RISC-based products. The chip is fully compatible with previous PA-RISC implementations, and will be made available as an upgrade in many current PA-RISC systems.

According to HP, working prototypes of PA-RISC 7100 are currently in HP development sites. By year's end, the new chip is slated to be incorporated into a variety of systems including the HP 3000 Series 900, HP 9000 Series 800 and HP Apollo 9000 Series 700 workstations. In systems, the 7100 is expected to achieve a SPEC rating of more than 120 SPECmarks. If so, it would rival the highly

anticipated Alpha-based products to be released by DEC later this year.

The PA-RISC 7100 owes its high degree of integration to a new 0.8 micron CMOS technology — a 20 percent improvement over the previously used 1.0 micron CMOS.

According to Willem Roelands, HP designed and produced the new chip in just 13 months.

Since its inception in 1986, PA-RISC evolved through seven processor implementations and three integrated circuit process technologies.

The PA-RISC architecture is currently licensed by Hitachi, Mitsubishi Electric, Oki Electric and Samsung Electronics. The new processor technology will be made available to all licensees. — *Grant Evans, Managing Editor*

Network Management Simplified

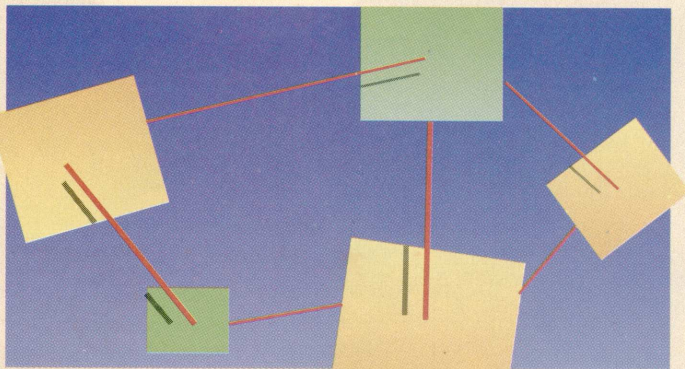
HP Extends The Reach Of Network Managers With Extensible SNMP Agent

HP recently introduced a software product that enables network administrators to add new capabilities to existing Simple Network Management Protocol (SNMP)-based applications and maintain centralized control of network resources.

Dubbed the HP OpenView Extensible SNMP Agent, the software provides customers with an integrated way to manage such diverse network resources as computer systems, printers, servers, databases, and end-user applications. According to HP, the new agent software is the first SNMP-based product requiring no additional programming to achieve such a high level of integration.

With the growing popularity of open systems and client-server architectures, the management of multivendor networks has become more complex. The Extensible SNMP Agent facilitates network administration by providing centralized control of network resources.

The agent adds to the ca-



capabilities of SNMP-based management applications, such as HP OpenView Network Node Manager. Because the agent requires no "C" programming, HP claims that network management can be customized by non-programming personnel.

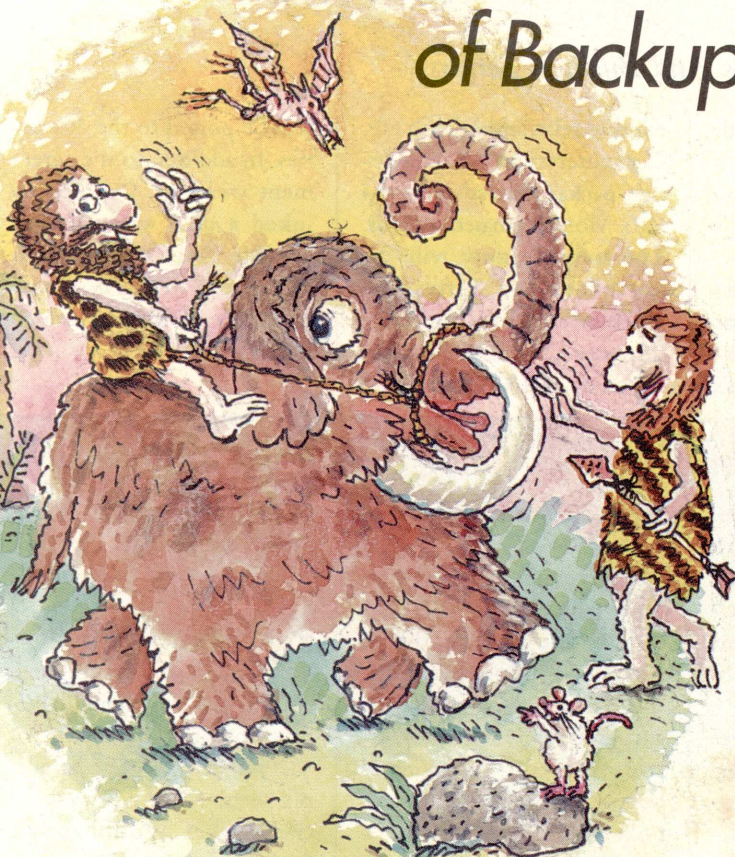
Because the Extensible SNMP Agent employs standards such as Internet Protocol (IP) and User Datagram Protocol (UDP) in addition to SNMP, it can be implemented in a variety of network management environments.

The Extensible SNMP Agent is available for the HP 9000 Series 300/400, 700/800 and Sun SPARC systems. Prices range from \$1,000 for

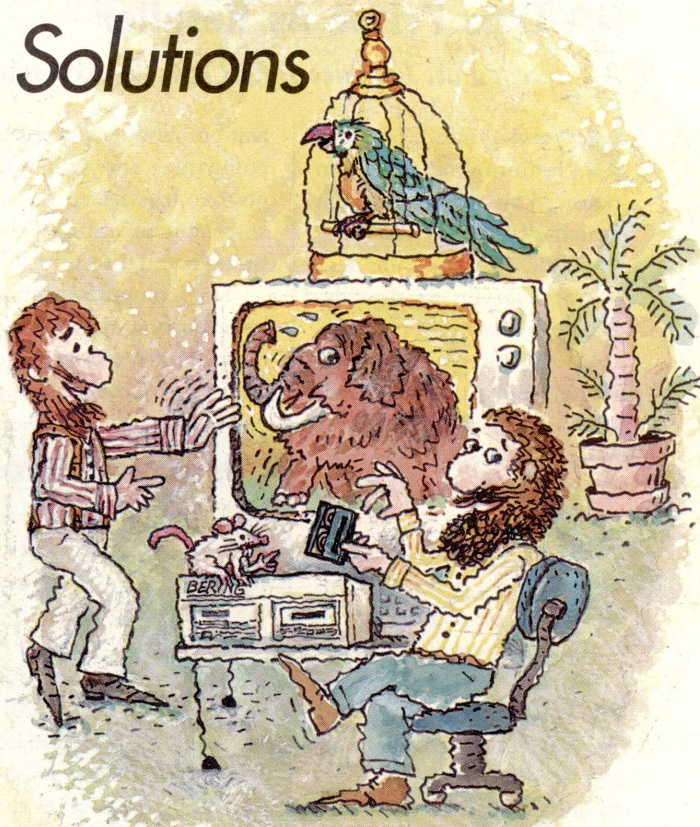
a single-system license to \$300,000 for a license for up to 1,000 systems.

In another recent SNMP-related development, HP announced that it is preinstalling and configuring HP OpenView Network Node Manager 2.0 with HP 9000 workstations. The preconfigured systems include the campus-management station, based on the HP 9000 Model 425e, and the enterprise-management station, based on the Model 720 workstation. The campus-management station can manage up to 500 system nodes, and the enterprise management station can handle up to 2,000 nodes.

Natural Evolution of Backup Solutions



Eeeeeek! Trying to backup a mammoth database used to be a task of historic proportions.

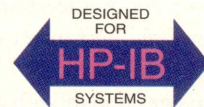


Now, Bering's ECHO easily preserves up to 5GB of jumbo projects on a tiny, mouse-size cartridge.

Mammoth Backup . . . on a Mouse-size Cartridge for Hewlett-Packard Computers



- ❖ "Fastsearch" now available with ECHO 4950
- ❖ High capacity – up to 5GB on one small, economical tape cartridge
- ❖ HP streaming and cartridge tape emulation
- ❖ MPE-XL, MPE-V, HP-UX and other operating systems support
- ❖ "Off-line" or "On-line" operation mode
- ❖ Built-in real-time clock for automatic, unattended backups
- ❖ Easy portability, storage and security



For further information, give us a call at 800.237.4641

BERINGTM

Bering Industries, Inc.
246 East Hacienda Avenue ▼ Campbell ▼ California 95008
800.237.4641 ▼ 408.379.6900 ▼ fax 408.374.8309

©1991 Bering Industries, Inc.
ECHO is a trademark of Bering Industries, Inc.
MPE-XL, MPE-V, HP-UX and HP-IB are trademarks of Hewlett-Packard Company.

See us at ICMS Booth #47



ECHO 4900 Series

High Capacity Streaming Tape Backup Solutions
for Hewlett-Packard Computers

CIRCLE 105 ON READER CARD

HP Taps Prime As Reseller

Multiyear Pact Includes PA-RISC Workstations And Business Servers

HP and Prime Computer (Framingham, MA) announced an alliance through which Prime will resell HP PA-RISC workstations and business servers worldwide. Prime also will port its CAD/CAM software to HP workstations and its Prime Information application development and database management software to PA-RISC business servers.

Under terms of the deal, Prime's Computer Systems Business Unit (CSBU) and its Computervision (CV) subsidiary will resell HP PA-RISC systems. As a result of reselling the systems and porting its software, Prime hopes to bolster its position as a supplier of both open system CAD/CAM software and hardware and software for business environments.

In a letter of intent, Prime agreed to purchase \$400 million worth of HP 9000 Series 800 servers and HP Apollo Series 700 workstations over the next three and a half years. Prime's CSBU will resell the Series 800 systems to new and existing customers as part of the division's strategy to provide customers of the proprietary Prime 50 Series midrange system with an opportunity to migrate to open systems. According to Willem Roelandts, GM of HP's Networked Systems Group, the Series 800 line is ideally suited for Prime 50 customers migrating to open systems.

According to Prime CEO and President John Shields, the alliance produces impor-

tant business benefits for both companies and will send a positive message to the marketplace concerning Prime's strength and direction.

The Computervision software porting agreement was characterized as a logical extension of Computervision's

existing relationship with HP. Computervision's Calma design package already runs on HP's Motorola-based systems. The software now will be ported to the Series 700 workstation line, and later this year CV's CADD5 integrated CAD/CAM software

will be ported to the 700 Series. In addition to the agreement with HP, CV recently inked a deal with DEC to provide CADD5 on their platforms as well. CV software products also run on Sun hardware.

For Your Information

■ Systems Center joined the ranks of Open Software Foundation (OSF) members. The company plans to include the OSF's DCE and DME technologies in future products. (703) 264-8000.

■ HP and Dun & Bradstreet Software joined forces to develop and co-market mainframe-class software for client-server environments using HP 9000/800 servers.

■ HP last month became the first vendor to pass all conformance tests required by the U.S. GOSIP testing program for Open Systems Interconnect (OSI) Services. GOSIP compliance is required in order to sell OSI products to the government.

■ HP is holding a series of one-day seminars entitled "Open Systems Concepts and Capabilities," designed to offer technology managers a high-level overview of open systems advantages and implementation. Call (800) 472-5277 for information.

■ Cognos is now shipping PowerHouse/Windows, a client-server version of its popular 4GL, running on HP 3000 systems under MPE/iX. (617) 229-6600.

■ ISICAD a developer of graphics-based, physical network management systems established a new services group. The group provides consulting implementation and customization services to corporations who are evaluating the cost and control benefits of managing their network resources with ISICAD's decision support software, COMMAND. (714) 533-8910.

■ Ingres, an ASK Company and the Santa Cruz Operation Inc. (SCO) announced a worldwide marketing agreement for the INGRES relational database management system and SCO Open Desktop. This is in response to end user and OEM requests for more flexibility in building relationships with database vendors. (408) 425-7222.

■ Exabyte Corp. announced a three-year renewal and expansion of an agreement with Kubota Corp./Nippon Systemhouse Co., Ltd. of Japan. Kubota/Nippon Systemhouse will continue to act as a second source supplier of 8mm subsystems for Exabyte. They also will manufacture the EXB-8200 and EXB-8500 ex-

clusively for Exabyte for sales in the U.S., Canada, Europe and the Far East. (303) 447-7434.

■ NCR Corp. and The Wollongong Group announced an alliance for the joint development and marketing of TCP/IP workgroup support products. NCR will co-label the market Wollongong's PathWay Access Products, the first of which will be PathWay Access for DOS/Windows. (619) 693-5311.

■ Acucobol Inc. signed as a member of the Informix OpenCase Program. As a portable COBOL compiler vendor, Acucobol will support the Informix OpenCase/ToolBus environment which enables developers to select CASE methods, tools and life-cycle products that run on UNIX-based platforms. (415) 926-6316.

■ VisionWare Ltd., a developer and supplier of PC/host integration software, signed an agreement with Network Computing Devices Inc. to support NCD's XRemote asynchronous communications protocol within VisionWare's X server, X Vision. (0532) 788858.

THE ONLY TAPE DRIVE THAT PUTS 25GB ON A SINGLE 8MM TAPE.



Do you wish you could find a backup system with enough capacity, speed, and sophistication to backup unattended?

Could you recreate a document from scratch in the time it takes you to restore it?

FAST BACKUP, FAST RESTORE.

Introducing the CY-8500, the 8mm tape

drive that gives you up to 25 GB on a single tape. And with transfer rates of up to 90 MB per minute, backup takes less time, frees resources, and makes frequent backup simple and convenient.

And that's not all. The CY-8500 offers fast file search capability. So you get the advantages of high capacity and

fast transfer rates plus the ability to locate and restore your files quickly – about 75 times faster than normal speed.

CONFIGURATION FLEXIBILITY.

The state-of-the-art liquid crystal display gives you complete drive status information. Command under execution, transfer rate,

tape remaining, and ECC are presented in a clear easy-to-read format. By offering such features as data compression – for five times the storage capacity per tape – and data encryption – giving you data access control – the CY-8500 adapts to your company's growing needs. We'll adapt to your site requirements

too, with rack mounting options and cable lengths of up to 80 feet.

PROVEN TECHNOLOGY.

Best of all, the CY-8500 offers peace of mind. 8mm helical scan technology, designed for data recording, gives you demonstrated performance and reliability. Not an adaptation of an audio recording format.

The CY-8500 is part of a complete family of tape backup products that range in capacity from the 150 MB ¼" cartridge streamer to the 2 TB cartridge handling system. All backed up by our in-house technical support group and 12-month warranty. For more information on how you can enjoy the best value in tape backup, call today at 804/873-0900.

TRUE "PLUG-AND-PLAY" COMPATIBILITY WITH:

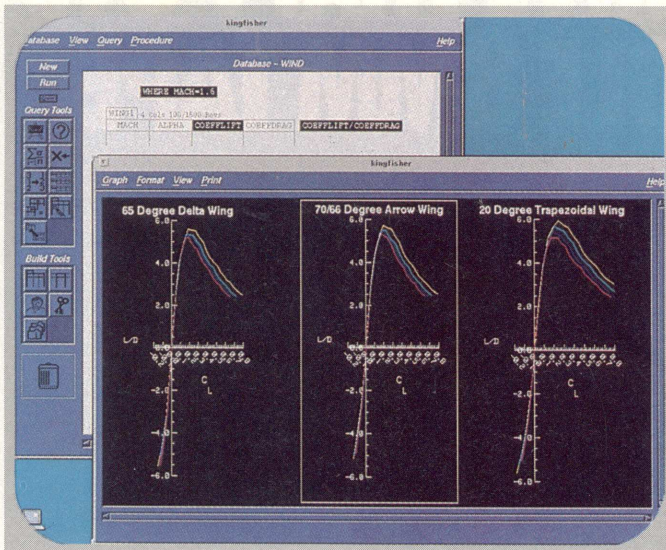
Alliant	DEC Unibus	PC 386/ix
Alpha Micro	Gould	PC MS-DOS
Altos	HP	PC
Apollo	IBM AS/400	Xenix/Unix
Arix	IBM Mainframe	Pertec
AT&T	IBM RISC/6000	Plexus
Basic-4	IBM RT	Prime
Concurrent	IBM S/38	Pyramid
Convergent	Macintosh	Sequent
DataGeneral	McDonnell	Silicon
DEC 3100	Douglas	Graphics
DEC BI-Bus	NCR	Sun
DEC HSC	Novell	Unisys
DEC Q-Bus	OS/2	Wang
DEC TU/TA81	PS/2	and more

CONTEMPORARY
CYBERNETICS
Group

Rock Landing Corporate Center · 11846 Rock Landing, Newport News, VA 23606 · 804/873-0900 · FAX 804/873-8836

CIRCLE 112 ON READER CARD

A Swiss Army Knife For Techies



Leading Technologies' TekBase Offers A Single Solution For Technical Data Management

It goes without saying that scientists, engineers and other users of technical applications have different data management requirements than business-oriented users. Scientists and engineers need to turn vast amounts of technical data into useful information, and even the best commercial databases are ill-equipped to handle the capture, management, analysis and visualization of such data sets.

TekBase, from Leading Technologies Inc., provides a set of integrated data management, analysis and visualization tools which enable technical users to handle a range of data management tasks with one software tool — as opposed to using a separate tool for each stage of testing and analysis.

The core of TekBase is a high-speed relational database which stores data and serves it to fully integrated analysis and graphics tools, as well as to external files and systems. Whereas most commercial

databases catalog a single data point as one record or storage unit, the TekBase system uses large data arrays. The TekBase array-handling system can read lengthy or continuous data streams from tests and processes, and then store the numeric sets as single variables.

TekBase allows for a variety of data import/export and data entry options as well. Users can retrieve data written in both custom and standard (FORTRAN, C, PASCAL, BASIC) formats directly from flat files or from on-site test equipment.

The data management tools are easily integrated into any testing and analysis environment. TekBase connectivity features enable users to connect directly to data sources, applications, test equipment and hardware platforms (including RS-232 and HP-IB devices). TekBase employs a client-server architecture for distributed data management and allows for transparent access to remote databases.

TekBase's advanced graphics capabilities will appeal to users who prefer a visual representation. Data can be visualized in a variety of formats at any stage of testing and analysis — from data capture to report generation. Continuous graphic representation of incoming data can be displayed during a testing procedure. Graph types range from 2-D bar and pie charts to 3-D line charts, wafer maps and polar plots with output to window,

printer or plotter files in HPGL, PCL, Postscript or CGM.

Data can be viewed instantly using a simple TQL command. TQL is the TekBase product's English-like Technical Query Language. TQL contains a large, easy-to-use set of data management and computational commands. TQL is fully extendable, allowing users to customize commands for project-specific data manipulation.

TekBase features Report Writer and Document Processor subprograms which quickly transform raw data into concise documentation.

Release 3.0 of TekBase, introduced late last year, includes an X11-based graphical front end called Kingfisher, which integrates the data management, analysis and visualization functions with a point-and-click/drag-and-drop interface. Also included is TSL, a 4GL tool for creating Motif- or Open Look-based applications.

TekBase 3.0 is supported on HP 9000/300, 400, 700 and 800 systems, as well as on IBM RS/6000, DEC Ultrix, Silicon Graphics and SunOS platforms. DEC VMS support is scheduled for this year. Pricing starts at \$4,875 per seat for a four-user system. — Grant Evans, Managing Editor

Leading Technologies Inc.

6 New England Executive Park
Suite 400
Burlington, MA 01803
(617) 229-8686
(617) 229-5656 Fax

CIRCLE 305 ON READER CARD

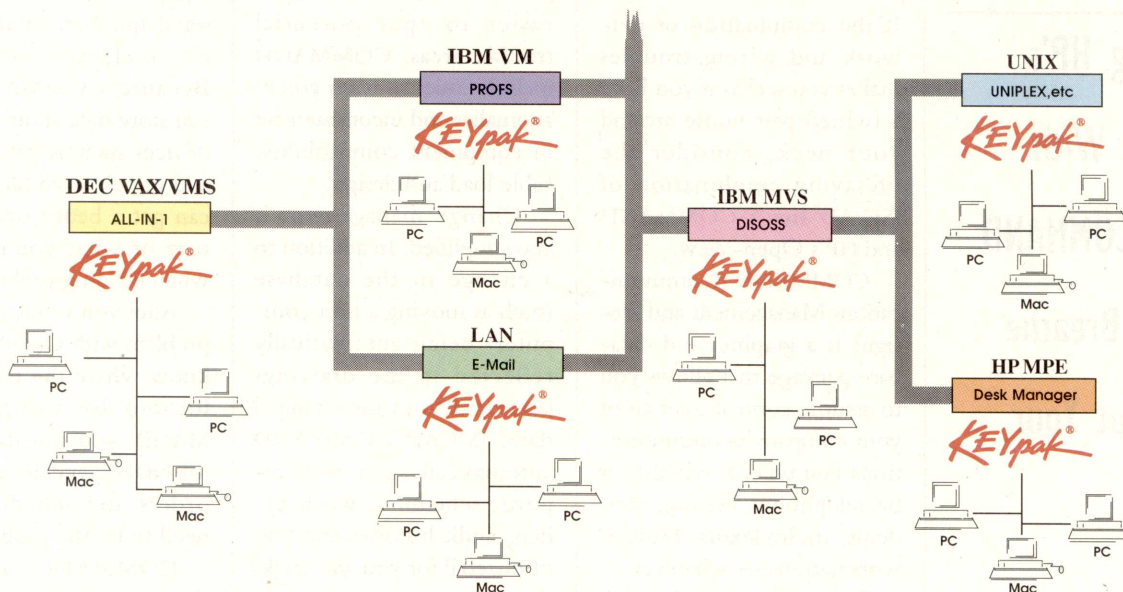
What do **IBM, DEC, HP,**
WordPerfect, Microsoft & Lotus
 have in common?

NOTHING

without

KEYpak®

"An Enterprise Wide Mail Enabled Document Interchange Solution"



No matter where the document originates, KEYpak delivers transparent document exchange throughout your enterprise wide network. Post-translation editing or clean-up is minimal. KEYpak completely integrates the multi-vendor office systems environment and provides total Editable Document Interchange among dissimilar systems.

When you invest in KEYpak you receive increased productivity through effective integration of PCs, Macs and workstation users and application

layer compatibility across all document processing systems.

Keyword also provides a range of services including conversion services, network design, application integration, enterprise wide computing and gateway technologies.

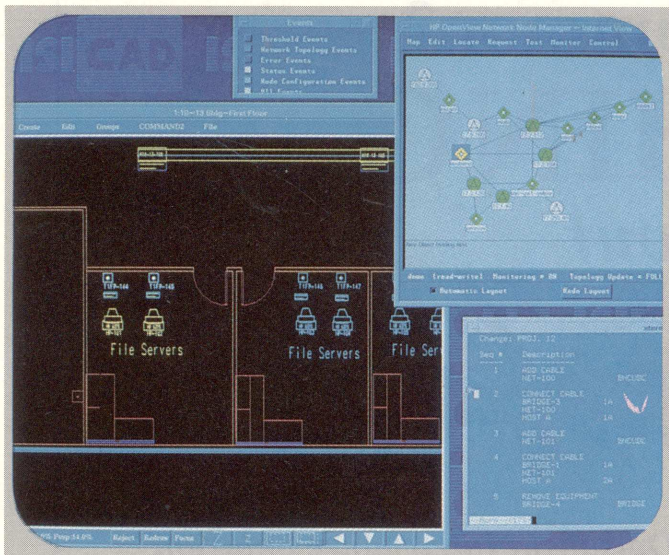
Call today (800) 866-6539 for the facts on how Keyword can assist you in re-architecting the office.

(800)866-6539

KEYWORD

KEYpak is a registered trademark of Keyword Office Technologies Ltd.
 All products listed are the trademarks of their respective manufacturers.

Loosen The Network Noose



Combining HP's
OpenView With
ISICAD's COMMAND
Lets You Breathe
Easy About Your
Network

If the combination of network and wiring troubles makes you feel as if you have a twisted pair noose around your neck, consider the lifesaving combination of ISICAD Inc.'s COMMAND and HP's OpenView.

COMMAND (Communications Management and Design) is a graphics and database package that allows you to assume control over all of your company's communications equipment, whether it be telephones, wiring, modems, multiplexors, bridges, workstations — whatever.

To care for the "physical" side of network and communications management, COMMAND's database is used to enter information about your communications equipment. This data can include such information as product descriptions, serial numbers, location, port numbers and cable type.

One common problem in network management is simply being able to locate a piece

of equipment. With a two-way link to the database engine, COMMAND's graphics feature allows you to use the data in the database to create wiring diagrams, schematics, building layouts and other useful displays. Changes made to your database are automatically reflected in any graphics generated from the communications data.

Use COMMAND to design your communications layout before installing anything. You can change the database and generate diagrams at will — making it easier to spot potential trouble areas. COMMAND includes rules to warn you of anomalies and inconsistencies in equipment compatibility, cable load and design.

Change management is also simplified. In addition to a change in the database (such as moving a host computer) being automatically reflected in the drawings generated from the changed data, ISICAD COMMAND automatically generates reports, schedules, work orders, audit histories and bills of material for you and tracks the progress of a project every step of the way.

Little needs to be said about HP's widely-acclaimed OpenView network management system. But a lot can be said for combining OpenView and COMMAND.

OpenView's management capabilities work on a "logical" level. While offering much insight on network problems and performance, OpenView doesn't supply

the detailed physical information supplied by COMMAND. Combining the two via ISICAD's COMMAND + HP OpenView link, however, can provide all the information you need to track down problems and make performance improvements.

Suppose you're experiencing problems with a bridge. OpenView is used to detect and report the problem on the network. With the link to COMMAND, you can get detailed information about the bridge such as the equipment manufacturer, the serial number, model number, building location, etc. Because COMMAND also can store data about "dumb" devices such as patch panels and punchdown blocks, you can get a better overall picture of what you're facing when tackling problems.

After you've identified the problem with OpenView and know where the problem is located by using COMMAND, you can use COMMAND to generate any work orders and schedules you need to fix the problem.

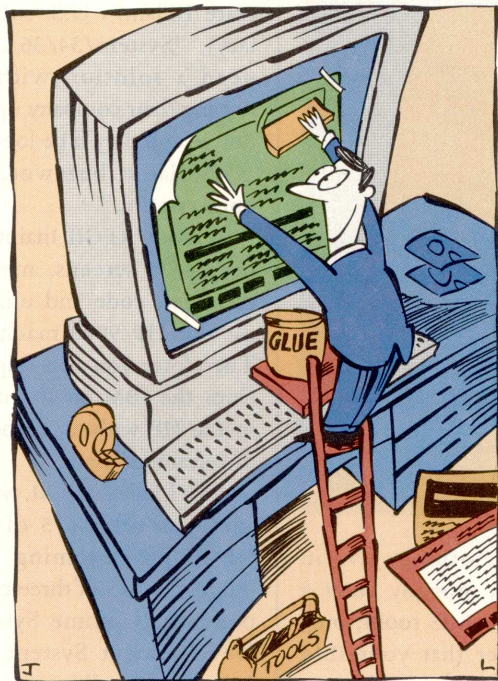
COMMAND and the OpenView + COMMAND link runs on HP 9000 workstations under HP-UX. COMMAND + HP OpenView link is priced at \$2,500. — David Miller, Senior Technical Editor

ISICAD Inc.
1920 West Corporate Way
Anaheim, CA 92801
(714) 533-8910

CIRCLE 302 ON READER CARD

Introducing the Do-It-Yourself Application Remodeling Kit

What if you could remodel your existing applications overnight to add PC-like retrieval windows and hot-key task switching on standard HP terminals? What if you could add incredibly fast on-line reporting in 30 minutes or less? What if you could customize command and help menus for your users in less than an hour? And what if you could do it all without taking a big bite out of your DP budget?



Remodel Your Applications Without a Second Mortgage

Not only can you make your users more productive with instant, on-line access to any data they need, but you can do it in a morning, for a fraction of the cost of an application rewrite. You save programming time. You save CPU overhead. You save disk I/O. And you save big software bucks. Pretty smart!

Introducing OMNIDEX On-Line. For Do-It-Yourselfers With No Time To Spare.

OMNIDEX On-Line combines the keyword retrieval power of OMNIDEX with the PC-like windows of OmniWindow and the instant reporting of OmniQuest to deliver a complete application make-over kit that can be installed in a morning. On ASK. Collier Jackson. SFD. Gerber Alley. On Speedware, QUICK, Cobol or any other 3rd or 4th GL application. No hand tools required.

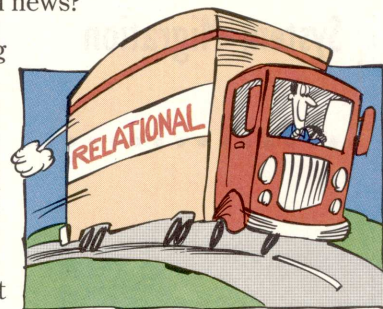


Thinking About Moving To Relational In The Future? We'll Provide The Moving Van.

Now you want the other good news?

If you're thinking about going relational, so is OMNIDEX. Within the year we'll be running on UNIX and relational databases with the same windows interface and instant

retrieval. Performance gains are just as spectacular on relational databases as they are on IMAGE. So you can rest assured that the investment in remodeling today will continue to pay off when you move to your new neighborhood.

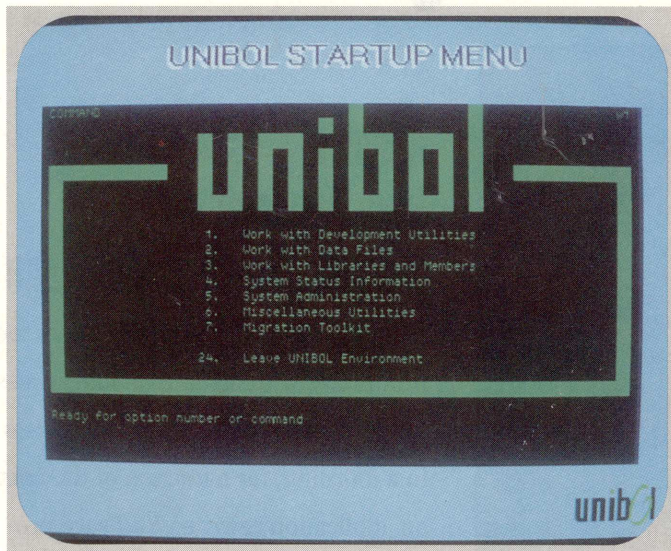


OMNIDEX On-Line. Business Solutions for the 90's.

DISC Dynamic Information Systems Corporation 5733 Central Avenue, Boulder, Colorado 80301 (303) 444-4000

CIRCLE 113 ON READER CARD

Mechanistic Metamorphosis



Unibol/RPGII

Transforms System

Saturation Into

System Migration



Monday morning, java in hand, you groggily enter a cold, white MIS room, only to discover that your IBM System/34 transmuted into a new computer, not just another blue beast, but an entirely foreign animal — a UNIX-based HP 9000. When you look at the screen, the essence is System/34; but the anatomy is definitely strange. Is it a Kafkaesque nightmare? Or a migration dream?

Many System/34/36 computers have reached saturation and it's time to make a decision. Although a UNIX platform provides a hardware solution, you can't afford to throw away the training, experience and software invested in a System/34/36.

However, from the land of green comes an alternative to the blues. Software Ireland Ltd. (New-tonabbey, Northern Ireland), hopes to entice 34/36 users to the HP 9000 with its Unibol/RPGII migration software.

According to Kay Carter

of Prosoft Consulting (Software Ireland's U.S. subsidiary), "System/34/36 users need a solution without turning their company upside down, and they'll be looking at the latest buzzword — open systems."

Unibol/RPGII maintains the 34/36 screens, menus, messages, code and utilities on the HP 9000 machine. Therefore, you can migrate from the IBM environment to the HP without recoding or retraining users.

The Unibol/RPGII, which supports release 5 of the RPGII programming language, consists of three components: Runtime System, Development System and Migration Toolkit.

The Runtime System, a subset of the Development System, lets you execute applications created in the development cycle. The Runtime System includes, RPGII runtime processor, OCL interpreter, DFU, Help, SSP utilities, print spooling, job queue, full screen and System/36 file support, UNIX interface to Unibol/RPGII utilities, and OCL interface to UNIX shell. This ensures applications appear as they did on the 34/36.

The Development System comprises the entire Unibol/RPGII product, including all runtime components plus, RPGII language compiler, SDA, general editor, DFU and interactive debugger. This lets you code new applications or change existing programs on the 9000 using the language of the 34/36.

The Migration Toolkit consists of two parts, one on the 34/36, the other on the 9000. Its purpose is to fully automate transferring files and programs from the System/34/36 to the 9000 running the Unibol package.

Through menus and help screens you collect the files and libraries of the 34/36 application being transferred. On the 9000 side, you rebuild the application by restoring data files, reconstructing index files, recreating any alternative indexes, reconstituting the library and members, recompiling all appropriate members, and producing a log of the process.

If an incorrect library member exists on the 34/36, the Toolkit determines the correct type and recompiles the member. The Toolkit also scans OCL and RPG programs for features not supported by Unibol/RPGII, and suggests alternative code.

Unibol Runtime protects System/36 code integrity by interpreting, not converting 36 commands at a low level "C" function.

Pricing for Unibol RPG/II varies according to the number of users you license. If your System 34/36 isn't feeling like itself, maybe it's time for a transformation. — *Charlie Simpson, Technical Editor*

Prosoft Consulting Inc.
4743 Cornell Rd.
Cincinnati, OH 45241
(513) 489-0141
(513) 489-0399 FAX

CIRCLE 301 ON READER CARD

ONE TALKS. THE OTHER EMBEZZLES.

I can combine voice, data, fax and LAN
over low-cost phone lines and save money.



drat!



Time was, the old stat mux was the best way to save money. Those days are gone. Your data-only multiplexor is costing you lost savings every day you use it.

For about the same price as a stat mux, you can now buy a data/voice network server able to combine remote voice, data, fax and LAN traffic over one low-cost leased line at speeds from 9.6K to 56/64 Kbps. It's called Marathon 1K and it's a breakthrough in technology and fast payback.

Using the same private line for voice and fax as well as data and LAN traffic can save big bucks month after

month on phone company toll charges. So Marathon 1K can pay for itself in just a few months, and after that all the savings go to your company's bottom line.

Products that don't save your company money are no more than profit robbers. Get Marathon instead.

Call for a free compressed voice demonstration or attend a Data/Voice Integration Workshop. Call toll-free (800) MICOM US [642-6687] or (805) 583-8600. Fax (805) 583-1997. Canada: (800) 932-DVNS.

Call today and stop wasting money.

Call MICOM Today For The Certified Marathon Distributor In Your Area.

MICOM®

CIRCLE 465 ON READER CARD

Session. Where Hosts

INSTRUCTIONS:

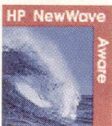
1. Point.
2. Click.

Session provides easy, point-and-click access to host data via your PC or Macintosh.

The Session family from Tymlabs includes PC-to-host communication solutions for MS Windows, HP NewWave, and Apple Macintosh users.



**MICROSOFT
WINDOWS**
Version 3.0 Compatible Product



Bridging the information gap between hosts and PCs has never been easier. Thanks to Session, Tymlabs' PC-to-host connectivity software.

Whether you use Microsoft® Windows, HP NewWave®, or the Apple® Macintosh®, Session simplifies the challenge of sharing information with your HP 3000, DEC VAX, HP 9000, and other UNIX® hosts.

You may have used other PC-to-host alternatives. And they may have worked just fine — as long as you had just DOS-based PCs. Take a closer look at Session, however, and you'll quickly discover that it's designed to work in today's graphical, point-and-click PC world.

Moreover, every Session package provides superior HP terminal emulation, plus DEC VT100® and HP ANSI terminal support for access to almost any host computer.

Session's point-and-click interface gives you easy, familiar access to host information.

Session adheres to the interface standards for MS Windows, HP NewWave, and the Macintosh, offering a common interface to all three platforms. Using Session on one is as easy as using it on another.

And because Session offers an easy-to-use, graphical front end to your host applications and data, it's your company's first, hassle-free step toward client/server computing.

Hand your communications tasks over to TermTalk.

Session includes TermTalk, a unique scripting language that streamlines your routine operations — or your most sophisticated PC-to-host interactions. English-based, block-structured, and friendly enough for non-programmers,

TermTalk provides extensive control over Session's communications with hosts and other PC applications. What's more, compiled TermTalk scripts run on any Session platform, no matter where they were created.

Compose a script using TermTalk's built-in editor. Or try the convenient script recorder. As you perform a task, TermTalk follows along, automatically building the script. Next time, a simple keystroke sets it in motion.

Use TermTalk to automatically log on, send E-mail, retrieve host data and add it

directly to your spreadsheet, print PC files on host printers, and much more. We even give you the tools to convert existing AdvanceLink® or Reflection® command files to TermTalk scripts.

TermTalk, Session's easy-to-use, compatible scripting language, is just like having your own personal assistant. Use it to handle all your PC-to-host tasks.



and Desktops Meet.

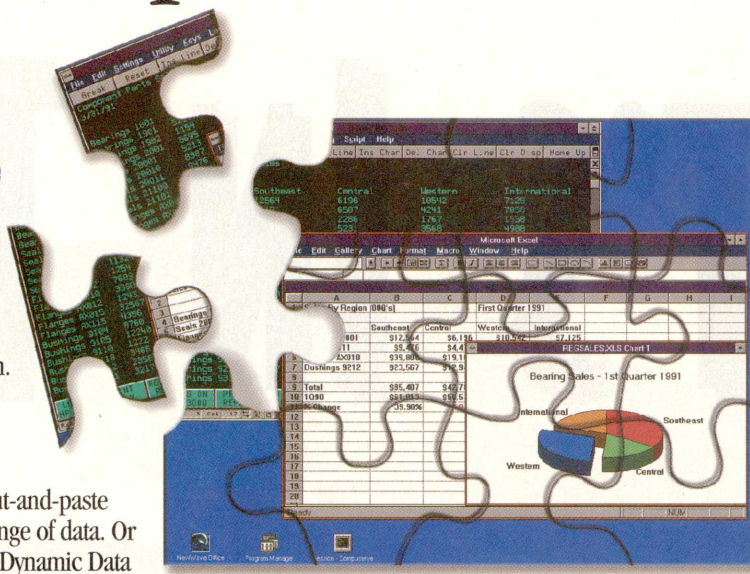
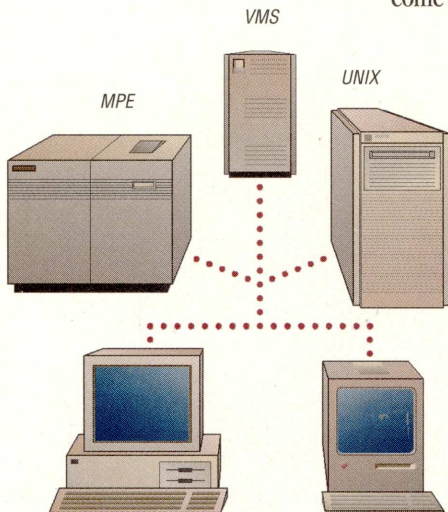
Access and integrate the information you need, when you need it.

Working on a report? Need monthly sales and expense figures? Need data from several sources? No problem. Session delivers the data-sharing capabilities you've been waiting for.

For example, you can use cut-and-paste for a simple one-time exchange of data. Or use Session and Microsoft's Dynamic Data Exchange (DDE) to build real-time links between your host and your other Windows applications. And, Session for HP NewWave lets you bring host data within reach of NewWave's advanced object management capabilities.

Weary of access limitations? Forget what PC-to-host connections used to be.

When it comes to connecting to HP, DEC VAX, and UNIX hosts — all from the same package — some products are plagued with limitations. Not Session. In fact, Session allows multiple — *even simultaneous* — connections with different host applications *and* different hosts, including your HP 3000, HP 9000, HP 1000, DEC VAX, and any UNIX host.



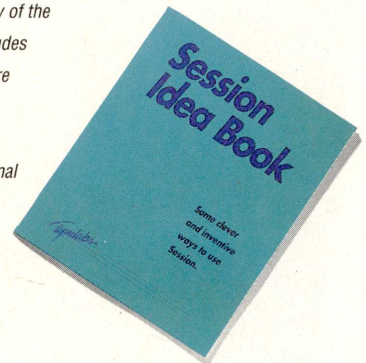
Wide-ranging connectivity and networking capabilities.

Wondering about Session's networking capabilities? Session supports all the popular networks: Novell,[™] Ungermann-Bass,[™] Banyan,[™] Microsoft LAN Manager,[™] AppleTalk,[™] and HP's AdvanceNet products. You can also perform multiple sessions over virtually any LAN.

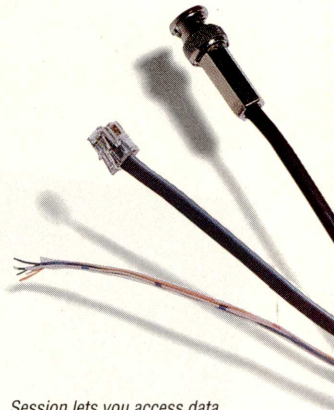
Impressed? Well, these are just a few of the ways Session can make PC-to-host connectivity simpler — and more productive — for your organization.

Session is where hosts and desktops really come together.

Call us now for your **FREE** copy of the *Session Idea Book*, which includes ideas on how our customers are putting Session to work today. Interested in trying Session? We'll send you a fully-operational trial copy with a full 30-day, money-back guarantee. No obligation. Just call us. **1-800-767-0611.**



Session offers Microsoft's Dynamic Data Exchange (DDE) and support for HP NewWave to help you retrieve, view, and integrate information from a variety of sources.



Session lets you access data over all the popular networks.

Tymlabs Corporation
811 Barton Springs Road
Austin, Texas 78704 USA
(512) 478-0611
Fax (512) 479-0735

Tymlabs (UK) Ltd.
Munro House, 9 Trafalgar Way
Bar Hill, Cambridge, UK CB3 85Q
0954-780088
Fax 0954-780001

CIRCLE 243 ON READER CARD

MAIL...

As UNIX Takes Its Place In The Office, HP OpenMail Stands Well-Positioned To Become An Industry Standard

BY PAULA JACOBS

Increasingly, electronic mail is considered a crucial component of the integrated office environment. Businesses today recognize that streamlined communications are essential to accurate and timely decision making. As the trend continues to store data in electronic form, electronic mail will assume a greater role in helping businesses to respond quickly and maintain their competitive edge.

A recent Dataquest study shows that the e-mail market is anticipated to grow from approximately 10 million users in 1990 to 17 million in 1995. The number of messages sent via E-mail is expected to increase from 12 to 25 million during the same time period. This phenomenon can be attributed to fast payback, the need to connect islands of computing, mail-enabled applications, and new ways of thinking about computing and communications.

Introduced in 1989 as the first E-mail product for UNIX, HP OpenMail is considered the industry-leading open standards-based mail server for UNIX; HP-UX, UNIX/386 and other vendors' UNIX systems. In fact, HP was the first major systems vendor to provide E-mail integration among multiple operating systems, including HP MPE, MS-DOS, UNIX and the Apple System. HP developed HP OpenMail using X/Open standards to facilitate porting to other vendors' versions of UNIX. Upon introduction, HP indicated plans to license the electronic-mail software to other systems vendors in an effort to establish HP OpenMail as an industry standard.

This cross-platform solution provides PC, terminal and workstation users with internal and external information distribution services across multiple platforms through electronic mail. HP

With the advent of workgroup computing, users are demanding freedom of choice on the desktop.

OpenMail transmits many media types, including HP NewWave objects, text, graphics, and binary, and supports multipart, multimedia documents, APIs and mail enabled applications.

HP has held to its promise of providing portability for other vendors' systems. Today, HP OpenMail now runs on the following platforms: IBM AIX for PS/2, SCO UNIX/386, IBM AIX for RS/6000, DEC Ultrix for DECstation and Sequent Symmetry. As of part its strategy to provide an open mail solution for open systems platforms, HP also has indicated intentions to port OpenMail to NCR, Sun, Pyramid, MIPS, DEC Ultrix for VAXstation, AT&T, and Unisys during 1992.

HP OpenMail is currently installed in the HP worldwide network of 92,000 users, averaging approximately one million messages per day. HP and its customers already have demonstrated connections to users of systems running DEC VMS Mail and ALL-IN-1, IBM RS/6000, Atlas, Bull, CDC and other systems.

"The most powerful aspect of HP's OpenMail strategy is porting to different platforms and selling to OA suppliers as the core engine," says Barbara Babcock, vice president of Information Systems for The Gartner Group (Stamford, CT).

"HP has been very effective as an OEM supplier and OpenMail fits in well with this strategy. If HP can obtain a handful of incremental partners, the main benefit for the customer is a common messaging system. Today, the problem is the difficulty of bridging together dissimilar products because even with X.400 directory services, additional work, such as integration services, is required... This kind of attempt on HP's part is important for industry development, and may result in a real win-win situation for both the industry and HP."

As E-mail has gained popularity over the past few years, many desktop department users have invested in PC-LAN E-mail is one solution. With the advent of workgroup computing, users are demanding freedom of choice on the desktop. Therefore, it isn't uncommon to find that different departments within the same organization have implemented a variety of word processing packages and PC-LAN E-mail gateway solutions. As a result, information technology (IT) departments responsible for corporate networks now must manage a complex infrastructure, often requiring administration at every remote site.

This situation presents difficulties both for desktop users and IT managers, who often bring different perspectives. Users con-

sider E-mail an easy-to-use desktop application, and are asking their IT departments for immediate connectivity, together with directory synchronization for enterprise-wide computing. IT managers, on the other hand, can't afford to invest in short-term tactical solutions, but must consider the long-term implications of an E-mail investment, including hardware, software and maintenance issues.

Often, because of their background with traditional mainframe and minicomputer E-mail systems, IT associates E-mail with high cost of ownership and purchase.

HP's Electronic Mail Strategy

"**W**E HAD BEEN LOOKING at what's happening with the introduction of PC LAN mail, and noticed a clear split between the end user and the IT departments as to ownership of E-mail," says Andy Watts, product marketing manager for OpenMail. "For example, end users are installing PC LAN systems but then are going to IT to connect them. The PC-LAN systems aren't industrial strength so there is a high hidden cost of ownership. IT hasn't delivered to users an easy-to-use solution. That's why HP has said we have a different solution to the problem."

Citing a recent Gartner Group study, Watts claims that PC LAN E-mail engines have high cost of ownership hidden by low initial purchase price. According to this study, the typical cost of ownership for a PC-LAN E-mail system over a five-year period is \$1,550 per user in one year. The highest portion of this cost (\$950) is classified as system integrity issues, which include system downtime, recovery and lost messages. On the other hand, HP estimates that the typical cost of ownership for HP OpenMail is \$519 per user in one year.

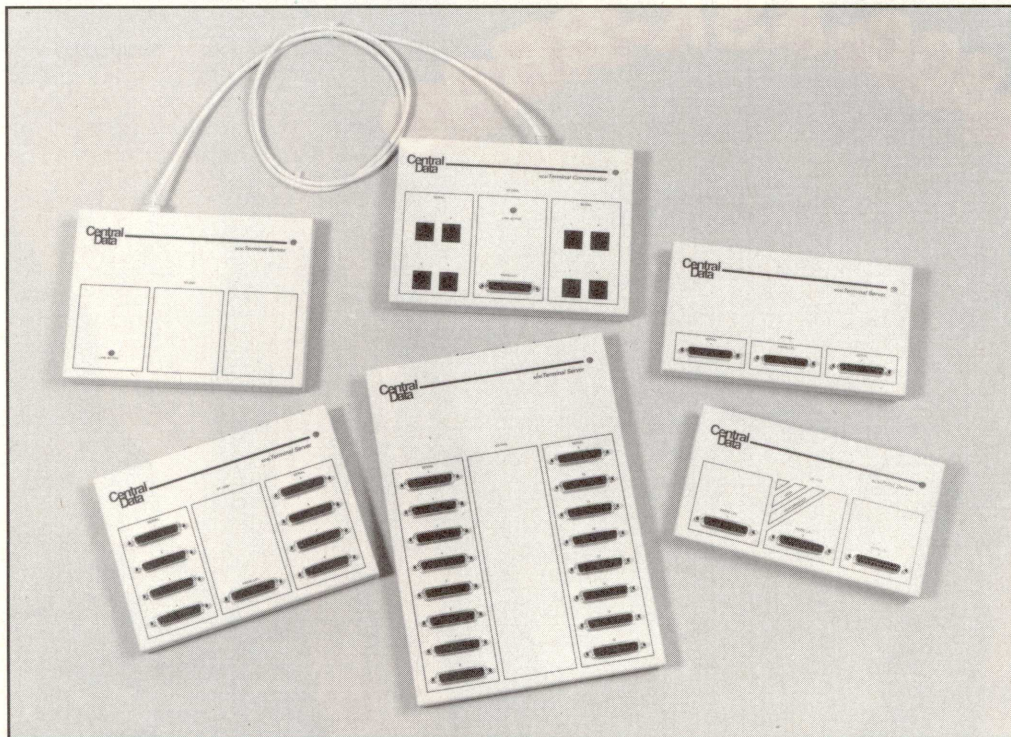
HP addresses this need with the HP OpenMail messaging backbone, which features a reliable, scalable mail engine, with a desktop user interface of choice. The HP OpenMail messaging backbone is based on the Open Systems Interconnect (OSI) X.400 standard method for exchanging messages between mail systems. To date, HP is the only vendor registered with the National Institute of Standards and Technology (NIST) to deliver U.S. Government Open Systems Interconnection Profile (GOSIP) compliant X.400 messaging, mandated in the U.S. and the U.K. HP OpenMail is fully integrated with HP's X.400/9000 Message Transfer Agent (MTA), enabling information exchange users in a multivendor environment, including proprietary X.400-based E-mail systems such as IBM's PROFS and DEC's ALL-IN-1. Because HP OpenMail offers a choice between OSI and TCP/IP transports, X.400 can be added as needed without upgrading HP OpenMail.

To further strengthen its backbone offering, HP recently announced commercial availability of the company's X.500 Distributed Dictionary, which supports X.500 as defined by the International Standards Organization (ISO). HP X.500 enables

Continued on page 33.

ONE SOLUTION. No SLOTS.

All you need to expand today's workstations.



THE SCSI TERMINAL SERVER™

Up to 392 serial and 49 parallel ports via SCSI

Everyone these days is talking about "open systems" and portability. At Central Data, instead of talking about it, we went to work. The result: the scsiTerminal Server. An open systems solution for the UNIX workstation market. And quite possibly the last serial/parallel expansion product you'll ever need.

By simply plugging into the SCSI port, a scsiTerminal Server can be added to your workstation in as little as ten minutes. Without even opening the system cabinet, or dealing with complex network configurations. Great news for VARs and integrators.

And you can easily mix and match multiple scsiTerminal Servers, making expansion virtually unlimited. With the new Series 2000 models, you can add up to 392 serial and 49 parallel ports, at distances as great as 1500 feet away from the host system. All without consuming an internal card slot.

scsiTerminal Servers support serial rates up to 57.6K baud. And compared to most multiport boards, they dramatically reduce CPU overhead, further improving overall system performance.

So whether you're using the Sun SPARCstation, the HP-Apollo 9000 family, or IBM's RS/6000, try a scsiTerminal Server now. It has all the portability and performance you'll ever need.

Model #	Serial Ports	Parallel Ports	Unit Price
Series 1000:			
ST-1002+	2	1	\$695
ST-1008+	8-56	1-7	\$995
ST-1016	16-112	—	\$1,495
SP-1003	—	3-21	\$795
Series 2000:			
ST-2001	Provides link to seven ST-2008+ units		\$695
ST-2008+	8-392	1-49	\$795

Call 800/482-0315 today.

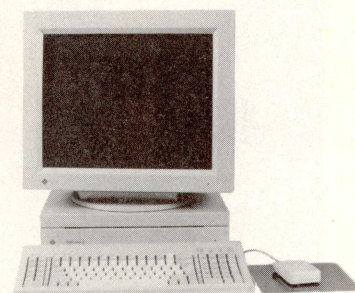
Central Data

The scsiSystems Companysm

1602 Newton Drive, Champaign, Illinois 61821 217/359-8010 FAX 217/359-6904 24-hour Literature (217/359-8010 ext. FAX)

scsiTerminal Server is a trademark of Central Data Corporation. scsiSystems Company is a service mark of Central Data Corporation. All other product names, trademarks, and registered trademarks are the property of their respective owners.

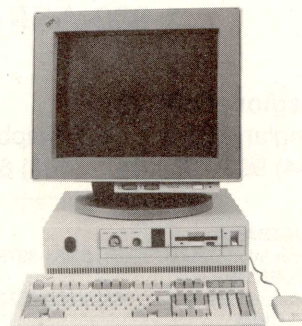
CIRCLE 467 ON READER CARD



Sun SPARCstation™

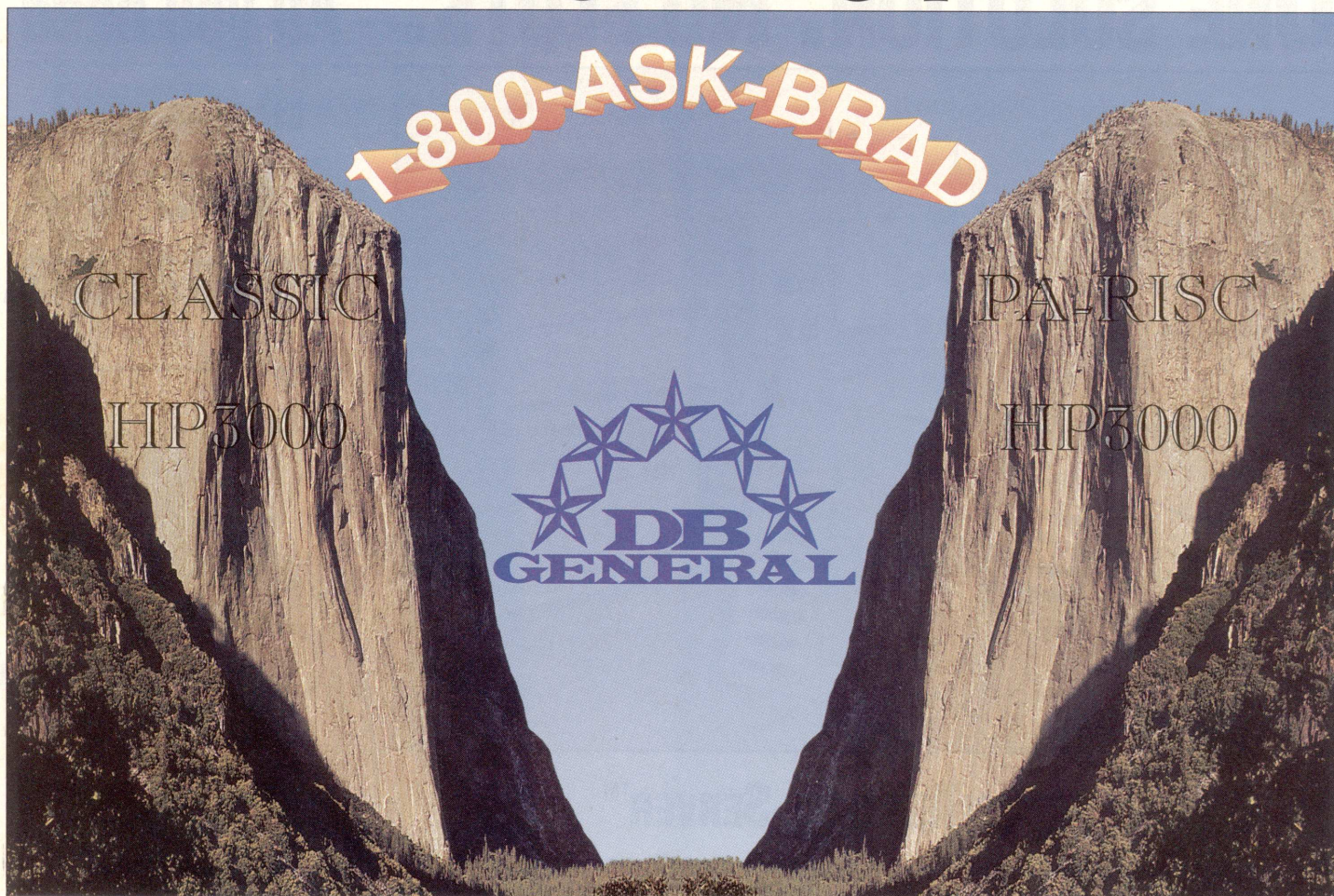


HP-Apollo 9000 Family
(Series 300, 400, 700)



IBM RISC System/6000™

Bradmark bridges the gap!



For those of you who have been considering DBGENERAL, but are having problems justifying a second database utility to management...

Bradmark announces a liberal database utility trade-in program that will bridge the gap and protect your original investment.

DBGENERAL in Native Mode reorganizes details and changes master capacities 5-15 times faster. As a result, DBGENERAL significantly increases system availability and conserves valuable resources.

So if you're ready to take the leap... we're ready to help you across. Call 1-800-ASK-BRAD today, and ask for the Database Specialist near you!

Regional offices:

England (UK)	Campbell, CA	Houston, TX
(44) 905-795-444	(408) 879-1630	(713) 621-2808



BRADMARK
Technologies, Inc.

AUSTRALIA Facer Info. Design (61) 2-484-3979	FRANCE ARES (33) 1-69-86-6000	ISRAEL Softkol (972) 3-348-938	SWITZERLAND SWS Software Sys. (41) 31-981-0666
ARGENTINA Software Plus S.A. (54) 1-826-2532	GREECE HP Consultants (3) 01-777-0561	NETHERLANDS Quant Systems (31) 2503-40334	SWEDEN Ole Nord AB (46) 8-623-0050
BELGIUM Cheops Technology (32) 03-237-7906	GERMANY I.A.B.G. (49) 89-6088-2074	MEXICO Infosistemas Financieros (525) 255-0293	TAIPEI Hewlong Info. Corp. (886) 2-322-2166
S.A.G.E.S. (32) 5-641-83-99	JF Infosys GmbH (49) 6722-6046	SAUDI ARABIA Saudi Info. Technology (966) 1-477-4555	WEST MALAYSIA Solsis (60) 3-256-1911
DENMARK Teamco Data (45) 75-92-5366	SWS Software GmbH (49) 7621-78041		

Continued from page 30.

users to lower maintenance costs by providing a common enterprise wide directory for E-mail addresses, phone numbers and other information that can be accessed by a variety of applications, including E-mail. HP X.500 software provides users with standards-based access to directories of names, objects, and data that reside anywhere on a network. HP X.500 also will be integrated with HP OpenMail for quick and easy user access to the X.500 enterprise wide directory.

OpenMail Enhancements

FOR 1992, HP'S OPENMAIL product enhancement strategy is focused on "cost-of-ownership" enhancements. Features that are expected to be introduced this year include: audit and stats; request server; access control lists; X.400 88 (MTA and Object IDs) for improved document support; deferred mailing; auto actions; directory enhancements; and user agents Application Programming Interfaces (APIs) such as to DOS, Windows, UNIX and X.500 links. These management tools are designed to provide a scalable, corporate-wide network free from administration overload, facilitating installation and configuration. The HP X.400 routing scheme also provides flexibility of network design and layout, ensures high performance, and eliminates message bottlenecks.

An E-mail system typically consists of four architectural components: User Agents or Applications, Accessories, Support Services, and Engine (OpenMail). HP is concentrating its efforts on the Engine area (OpenMail), while third-party suppliers are providing a variety of User Agents and Accessories.

Presently, there are several applications/user agents that support OpenMail. These include: HP's DOS Windows/NewWave, DOS AdvanceMail, and Terminal AdvanceMail; JetForm's Forms Integration; the Dexotek Calendar/Scheduler; and the Uniplex (XWindows/MSWindows). The breadth of these offerings and applications helps strengthen the attractiveness of OpenMail, supporting a wide range of desktops and desktop user requirements in today's integrated office environment. For example, HP AdvanceMail, client software that runs in the DOS environment, provides full integration with HP OpenMail or HP DeskManager. JetForm's Form Integration Capabilities provide forms fill in and integration capabilities, while the Dexotek Calendar/Scheduler provides workgroups with an integrated scheduling, agenda and diary system.

Accessories

ACCESSORY PRODUCTS EXTEND the capability of HP OpenMail and address the versatile computing requirements of today's multivendor environments with a variety of desktops and LAN configurations. This product category, includes minicomputer gateways (The Boston Software

Works), PC LAN gateways (Touch Communications Inc.), mail-enabled document interchange (Keyword Office Technologies), and network management tools such as the Retix X.400/SCO gateway.

One such product is Keyword Office Technologies' KEYPack Document Converter software, that enables users to retain the word processor of choice. This mail-enabled software application, which integrates with OpenMail, provides document interchange for over 45 word processing formats.

The Boston Software Works, a software development firm specializing in high-quality office automation integration and coexistence products, has announced plans to introduce a version of its InterOFFICE E-mail gateway to HP OpenMail. Initially, the Boston-based company will release the InterOFFICE E-mail gateway for the HP-UX and SCO UNIX platforms.

"HP OpenMail is one of the most important offerings in the UNIX electronic mail market today," says Ross Gale, president of the Boston-based company. "InterOFFICE will provide seamless integration between HP OpenMail systems on a variety of UNIX platforms and several popular integrated office systems, including IBM OfficeVision for the AS/400, DEC ALL-IN-1, Wang OFFICE, and HP DeskManager."

InterOFFICE is a software-only solution patterned after the OSI X.400 messaging and X.500 directory standards. It transparently automates directory synchronization, message exchange, document conversion, and multinational character set translation. Integrated office systems from different vendors can exchange a wide variety of office message types, including simple text messages, word processing documents, meeting invitations, and binary files such as spreadsheets.

Gale views multivendor connectivity as a key requirement for the growing number of UNIX Integrated Office Systems (IOS) users. "That's why we feel that InterOFFICE provides an important value-add for users who require multivendor connectivity yet cannot move to pure standards-based messaging."

Touch Communications, a California-based firm, has entered into a development agreement with HP for PC-LAN E-mail gateways to HP's X.400 messaging backbone. Touch is porting its Worldtalk PC E-mail Gateway Software to the HP 9000 platform for integration with HP X.400 software. The HP and Touch collaboration is expected to yield a scalable messaging server that will provide LAN E-mail connectivity directly into the HP messaging backbone. By consolidating software on a single scalable server, implementation costs will be greatly reduced.

The first two Touch gateways will connect users of the leading PC LAN E-mail products, Microsoft Mail for the Macintosh, cc:Mail, and HP OpenMail via HP's X.400 offering. The company also plans to deliver gateways to MHS, QuickMail, and Lotus Notes to further extend HP's X.400 backbone in the PC/LAN E-mail environment. HP plans to expand its relationship with Touch to deliver PC LAN directory access to the HP

X.500 distributed directory services, allowing PC LAN E-mail users to access enterprise-wide directory information.

Uniplex And HP OpenMail

AS THE RESULT OF A joint strategic marketing and technology-sharing relationship between Uniplex and HP, Uniplex is porting OpenMail to popular hardware platforms and is incorporating OpenMail into Uniplex Business Software as an alternative to Uniplex mail. To date, Uniplex has ported to the IBM RS/6000 and DEC's 5100 workstations, making OpenMail a de facto standard for open systems. OpenMail already is available on multiple platforms, making it the most widely available X.400-based E-mail product. Networks consisting of systems from hardware manufacturers such as IBM, DEC or HP can all share the same X.400-based E-mail system -- OpenMail. An additional 18 ports also are scheduled for release this year, including Sequent, NCR, Sun, Pyramid, MIPS, AT&T and Unisys. This year, Uniplex also will incorporate OpenMail into the Uniplex engine for E-mail capabilities.

According to this agreement, HP's sales force can make

Uniplex Business Software available to its customers. In addition, other vendors can make OpenMail available to their customers through an agreement with Uniplex.

"Two years ago we evaluated our future requirements," says Larry Warnock, director of marketing at Uniplex. "We saw that

The Boston Software Works Inc.
120 Fulton St.
Boston, MA 02109
CIRCLE 357 ON READER CARD

Dexotek
100 Harwood Blvd.
Suite 2
Dorion, Quebec CD J7V 1X9
CIRCLE 356 ON READER CARD

Jetform Corp.
560 Rochester St., Ste. 400
Ottawa, ON K1S 5K2
CIRCLE 355 ON READER CARD

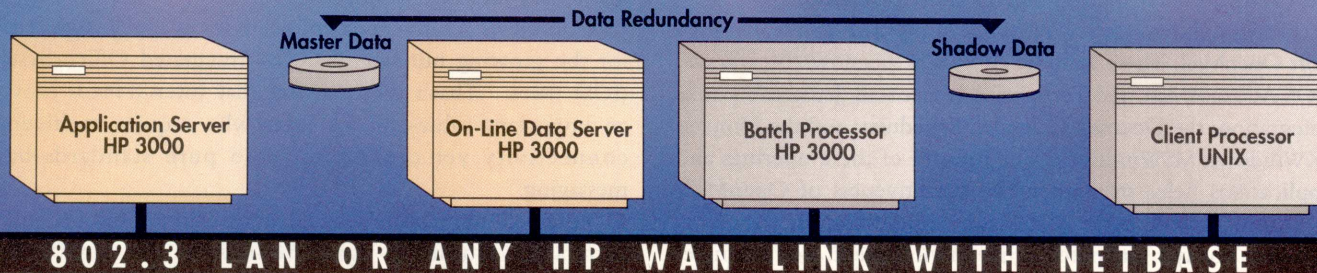
Keyword Office Technologies Ltd.
2816 11th St. N.E.
Calgary, AB T2E 7S7
CIRCLE 354 ON READER CARD

Retix
2401 Colorado Ave.
Santa Monica, CA 90404
CIRCLE 353 ON READER CARD

Touch Communications
250 East Hacienda Ave.
Campbell, CA 95008
CIRCLE 352 ON READER CARD

Uniplex
150 West Carpenter Freeway
Irving, TX 75039
CIRCLE 351 ON READER CARD

NEED HORIZONTAL GROWTH?



NetBase is comprehensive networking software that allows a network of computers to work together as one large system. Data centers with one or more computers can immediately benefit from NetBase's powerful capabilities.

If your organization has a need for more processing power, transparent network file and program access, or fault tolerance, NetBase is the solution. Whether it's Unix, MPE, or DOS based clients, NetBase services allow you to preserve your hardware and software investment while moving toward Open Systems solutions.

Companies needing more compute power can simply add another computer and use NetBase to distribute their applications. The result is better performance and less cost.

- ◆ Spreads file and database I/O across nodes (database engine)
- ◆ Increases application performance
- ◆ Remote file access without remote sessions or DSLINES
- ◆ No application changes required
- ◆ Immediately improves performance for users of NS/3000
- ◆ Shows network activity for security and monitoring
- ◆ Uses low overhead transport algorithms
- ◆ User exits (API's) increase functionality and flexibility
- ◆ Support for NFS clients

E-mail is becoming significantly more important, with the need for more sophisticated capabilities such as compound documents and support for emerging standards, specifically X.400. We decided to find an existing product, and found that OpenMail was the only product to meet these requirements. The fact that it's built around X.400 rather than a gateway is critical. HP was looking for a company with cross-industry experience to port OpenMail, and Uniplex met that need since we currently run our product on 80 UNIX derivatives."

Warnock feels that the strongest Integrated Office Systems will be more open and more adaptable to multiple solutions. "The real future for the Integrated Office Systems is to get the disparate packages to work together," says Warnock.

Bridging The Gap

AS USERS CONTINUE TO purchase UNIX for the office, freedom of choice will continue to be a key requirement. Integrating different desktop solutions will remain a real challenge because typical office environments often have disparate desktops — a mixture of DOS, UNIX, proprietary operating systems — within the same environment.

Electronic mail will play a leading role in connecting these various solutions. In fact, E-mail can be viewed as a technology enabler, bridging the gap between computing and the desktop.

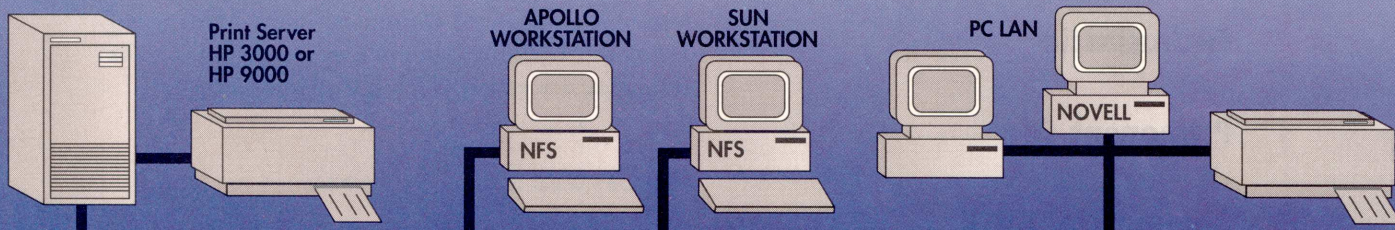
As UNIX takes a firmer hold in the office, HP will be well-positioned with its E-mail solution — the OpenMail engine will run on a wide variety of vendor platforms. Today's sophisticated users want solutions that address long-term strategic objectives in a multivendor environment.

OpenMail may well become the preferred mail engine because of the advantages it offers: text editor independence, portability, conformance to standards and an industrial-strength engine. The availability of applications and accessory products, including a variety of gateway connectivity products, only strengthens user requirements for flexible solutions. The fundamental question is how quickly will it take for solutions such as HP OpenMail to drive market demand for UNIX Integrated Office Solutions. — *Paula Jacobs is a marketing consultant and writer based in Framingham, Massachusetts. She specializes in the implementation of new technologies.*

Would you like to continue to see articles on this topic?

Circle on reader card
yes 340 no 339

WITH NETBASE YOU'VE GOT IT!

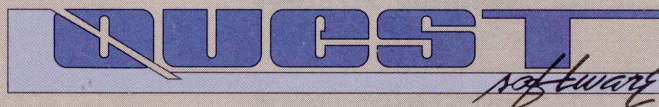


GROW WITH NETBASE NFA

Using NetBase Network File Access (NFA), an application designed to run on a single computer can easily be distributed across multiple computers *without having to change a single line of application code.*

Distributing applications is simple. NetBase maintains a centralized directory of files and databases that are available to network users. Once entered into the directory, all requests to that file or database are directed to the appropriate machine. Instead of costly upgrades, inexpensive CPU's can be easily added to increase overall processing power.

FOR ADDITIONAL INFORMATION OR A DEMONSTRATION TAPE CONTACT:



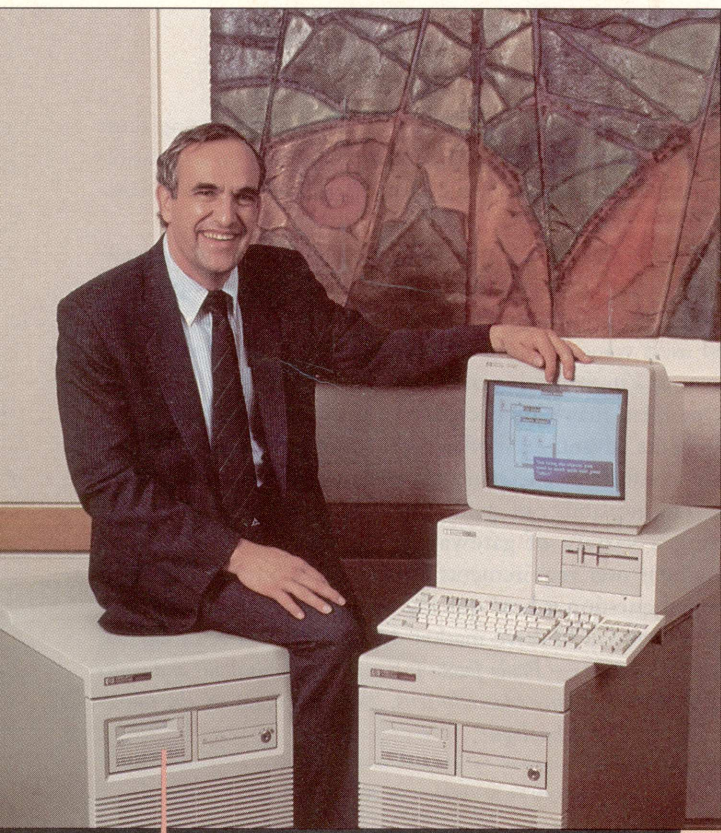
Quest Software, Inc 610 Newport Center Drive, Suite 890,
Newport Beach, CA 92660 Phone: 714-720-1434 Fax: 714-720-0426

In Europe Contact:

System Software (Int.) UK (+44) 0905 794646
ORBIT (+33) 40 25 16 50 France
(030) 852 7097 Germany
(31) 2979 11468 (Benelux) B.V.
(42) 33 59 59 (Scandinavia) AB
(93) 280 32 54 Spain



CIRCLE 268 ON READER CARD



**HP's Bernard Guidon,
Arguably The Most
Enthusiastic
Proponent Of
Commercial UNIX,
Discusses HP's
Winning Strategy**

BY ANDY FEIBUS

What Is Commercial UNIX

Anyway?

Editor's Note: To discover what "Commercial UNIX" really entails, *HP Professional* UNIX Editor Andy Feibus interviewed Bernard Guidon, General Manager of Hewlett-Packard's General Systems Division. The following are excerpts from that interview.

FEIBUS: What is commercial UNIX?

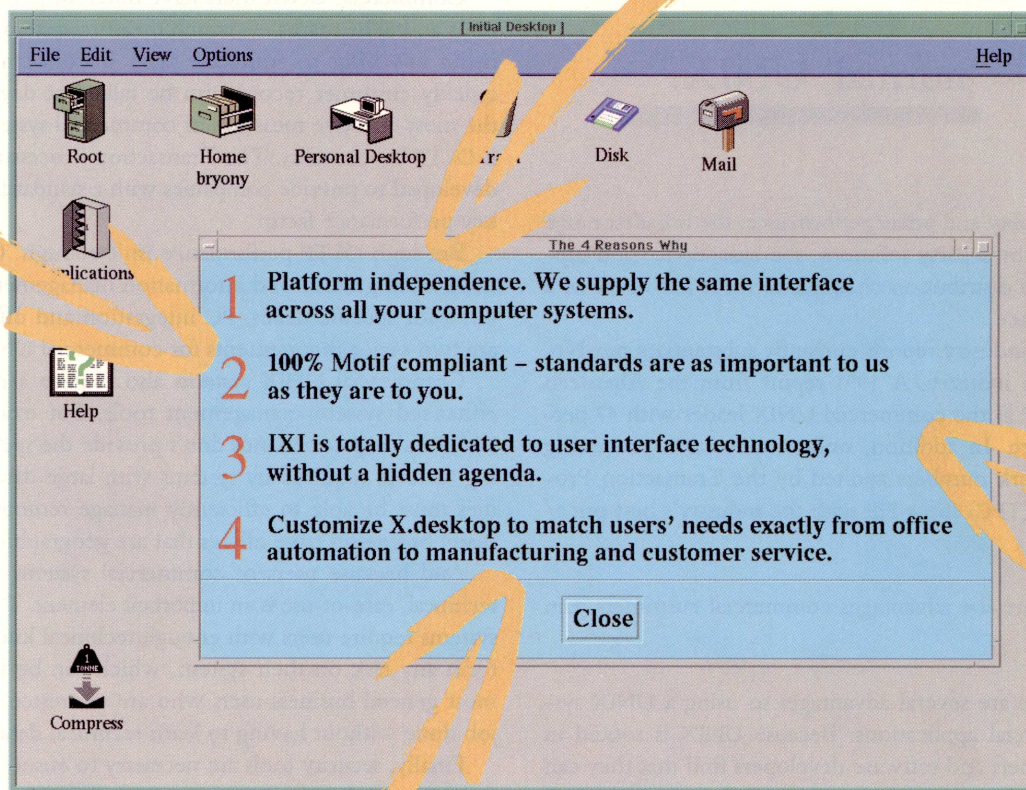
GUIDON: "Commercial UNIX" refers to using UNIX technology, historically used in technical environments, for solving mainstream, business-critical needs. Businesses are no longer just using UNIX systems to design products, but to manage their daily business operations as well. Consequently, general office workers in addition to engineers are now using UNIX systems.

FEIBUS: Who are the target customers, and what is HP's overall strategy?

GUIDON: Most businesses can benefit from the advantages of UNIX. However, HP is currently focusing on several market segments of the commercial world, including telecommunications, manufacturing, lodging, retail, finance and health care.

Our strategy has been to position HP as the No. 1 commercial UNIX vendor in the industry by providing products with

4 Reasons why HP users choose X.desktop™ when HP VUE comes free.



- 1 Platform independence. We supply the same interface across all your computer systems.
- 2 100% Motif compliant – standards are as important to us as they are to you.
- 3 IXI is totally dedicated to user interface technology, without a hidden agenda.
- 4 Customize X.desktop to match users' needs exactly from office automation to manufacturing and customer service.

If you need to run software and manage information in a sophisticated Open Systems environment, then look no further. X.desktop complements any Motif™ graphical user interface. It shows files and programs as icons that can be directly manipulated by a mouse. This visual approach builds confidence and lets users organize their work better and easier.

X.desktop lets you support one desktop manager on all your systems including DEC,

IBM, Sun and HP, reducing training costs and support load. X.desktop's open API allows you to integrate your applications into the desktop in a seamless fashion.

X.desktop has already captured 60% of the third party desktop manager market (X Business Group, 1991).

When it comes to UNIX computing, only IXI make it easy.

Call IXI today at (510) 275-3120.

We Make it Easy™

IXI



IXI Corp. · One Annabel Lane · San Ramon · CA 94583 · Tel: (510) 275-3120 · Europe: +44 223 462131

X.desktop, IXI and the IXI logo are trademarks of IXI Limited. All other products and brand names are trademarks or registered trademarks of their respective companies.

CIRCLE 470 ON READER CARD

“Generally, UNIX for commercial applications needs to be more robust than ‘normal’ UNIX.”

the best functionality and price/performance, the broadest range of leading-edge third-party solutions, the best service and support, and flexible distribution channels to meet the needs of a diverse marketplace.

A number of industry reports currently substantiate our No. 1 position in the industry. A 1991 report from the Aberdeen Group shows HP as the commercial UNIX leader with 47 percent market share. In addition, online transaction processing (OLTP) benchmark numbers audited by the Transaction Processing Council (TPC) show HP with the industry's best price/performance.

FEIBUS: What are the advantages commercial customers gain through UNIX?

GUIDON: There are several advantages to using a UNIX system for commercial applications. Because UNIX is rooted in standards, customers and software developers find that they can port applications between systems from different vendors. A common language between different UNIX systems enables users to move applications easily from one platform to another with minimal cost, and without getting locked in to one vendor.

Networking always has been a strong component of UNIX. Technically, UNIX was developed as an open system, so data interchange and interoperability between systems — even those of different vendors — is simpler compared to proprietary systems. Interoperability protects users with existing UNIX systems because it enables them to easily upgrade them or integrate new systems.

More important, most customers' computing environments have UNIX. The key is to provide commercial systems that they can quickly and easily integrate into their existing environment, giving them the power to make timely business decisions.

FEIBUS: How is “commercial” UNIX technically different from “normal” UNIX?

GUIDON: Generally, UNIX for commercial applications needs to be more robust than “normal” UNIX. When an engineer's workstation goes down, it becomes an annoyance for that engineer. When a company's main system goes down, it can halt critical business operations leading to significant financial loss. Robust commercial UNIX systems ensure that a system doesn't crash because of lower quality hardware or major bugs in an operating system. High availability features such as disk mirroring and processor switchover give companies that extra assurance that their systems won't go down unexpectedly.

Commercial UNIX users have different performance needs. MIPS and SPECmarks — which measure system speed — don't mean anything to someone who is concerned about how quickly customer records can be tallied at day's end. One of the most effective measures of commercial system performance is OLTP benchmarks. The Transaction Processing Council was developed to provide companies with a standard measure of this key performance factor.

But high OLTP performance isn't enough. Companies also need leading OLTP and information management solutions tailored for specific needs. PC integration and office automation are two major requirements for commercial UNIX systems.

Commercial UNIX systems also require a complete set of enhanced system management tools. For example, standard UNIX backup commands don't provide the speed and cataloging features required by systems with large databases. Companies must be able to efficiently manage remote systems, since many businesses have offices that are geographically dispersed.

And because users of commercial systems tend not to be technical, ease-of-use is an important element. Traditional UNIX systems require users with enough technical knowledge to perform any task on their system, which can be intimidating for most general business users who are interested in getting their job done without having to learn technical details of a system.

Finally, security tools are necessary to ensure that critical information and programs are protected from unauthorized access and modification. Companies must be able to protect such information as payroll data and financial records.

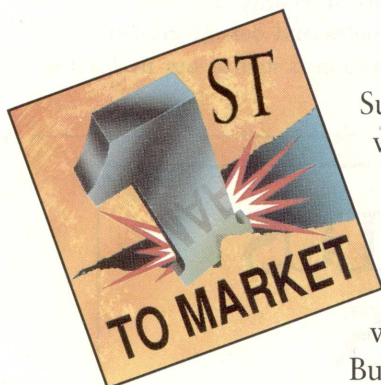
FEIBUS: What has been added to HP-UX for the commercial market?

GUIDON: HP-UX is the most robust commercial UNIX operating system on the market today. I believe that no other UNIX offering provides as solid, as powerful and as complete an environment for meeting business needs.

Our HP 9000 business systems and servers have the highest mean-time-between-failure (MTBF) rating in the industry and our software quality is continually monitored and tested.

High availability solutions are designed to be added-on, so customers can easily and cost-effectively upgrade their systems as their needs grow. HP-UX solutions include battery backup, disk mirroring and processor switchover/failover.

Our HP 9000 Series 700 memory is also guaranteed to be compatible with this.



First to market

Like a ten-year record of 100% compatibility. And a reputation for successful first-to-market memory introductions.

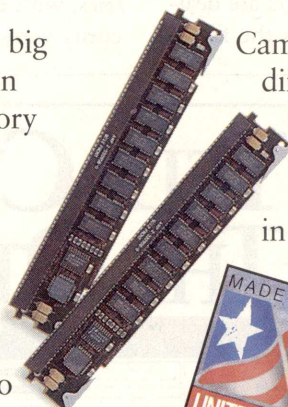
What's more, Camintonn memories are manufactured in the US for better control of quality and higher reliability.



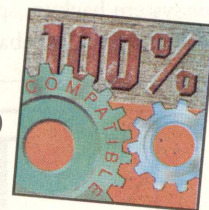
10-year track record

Sure, you'll save big with Camintonn upgrade memory for HP 9000 Model 720/730/750 workstations.

But memory from Camintonn has much more to offer.



Camintonn offers three different memory modules for HP 9000 Series 700 systems. You can add memory economically in 8, 16 or 32-MByte increments up to a total of 192 MBytes, depending on model.



100% compatible

So for high performance, without the high price, call Camintonn/Z-RAM today for details.

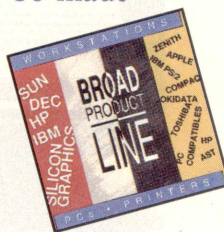


US-made



Lifetime warranty

And every Camintonn memory comes with the ultimate performance guarantee: a lifetime warranty.



Broad product line

CAMINTONN
CORPORATION

The last word in memory

Tel: 800/843-8336 or 714/454-6500

Fax: 714/454-6599

Z About Z-RAM

Camintonn/Z-RAM memories include upgrade products for IBM® PS/2® and Apple® Macintosh® computers, laser printers and most PC-compatibles.



HP is the only vendor that can provide object-code compatible systems for desktop to data center uses. This enables companies, especially those with enterprise-wide computing environments, to easily upgrade to higher performing systems as their needs change.

We also continue to establish leading performance with relationships established with the top [Relational Database Management System (RDBMS)] UNIX suppliers such as Informix, Oracle, Sybase and Ingres. Our ongoing relationship with the key database suppliers allow us to continually tune our systems for increased performance.

PC integration is another strong point for HP's commercial UNIX environment. LanManager/X, Novell and Pacer (for Apple PCs) allow the HP 9000 to act as a file server for networked PCs. And our HP NewWave Office products provide a comprehensive environment for client-server applications between PCs and HP 9000 servers.

We've also made the system manager's life easier with the HP 9000. HP-UX has a complete set of system management tools that provide much more capability than available ever before. For system backup, speed is very important when you are dealing with large databases. HP's OmniBack/Turbo is the fastest

backup product for UNIX systems today. OmniBack/Turbo can perform backups at a speed of 5 GB per hour and unattended backups for up to 40 GB.

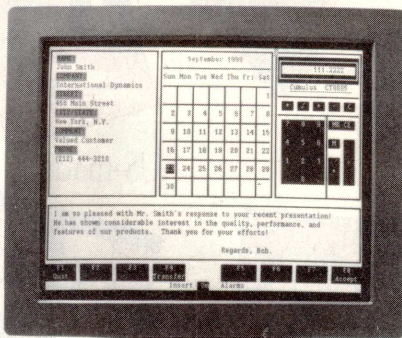
HP offers a commercial spooler on HP-UX called OpenSpool and a range of performance management tools. You'll soon see even more system management solutions as we bring on board applications from top solution vendors. HP-UX [has been chosen as the] first UNIX platform for Computer Associates.

We're also making the general user's life easier as well. For example, in HP-UX there are a number of utilities that let you easily execute complex system commands through softkeys. There is also a windowing capability for ASCII terminals that lets you toggle between many different UNIX sessions or applications, and cut-and-paste data between sessions.

System security is also assured with HP-UX. We provide for full file and application protection, as well as a protected password database. There is a full auditing capability that tracks unsuccessful login attempts that may indicate break-in attempts. In addition, we're meeting special security requirements, such as those required by government- and defense-related industries, with enhanced security products such as our B1-level security version of HP-UX.

HOW TO TELL CUMULUS FROM THE OTHERS.

- Plug compatible for 700/92, 700/94, 2392, 2394.
- For use on all HP 3000/9000/1000's.
- 40% larger screen area.
- Custom font.
- Less user eye strain.
- 8 pages of displayable memory.
- 80/132 columns in 2 keystrokes.
- 2394 forms cache.



- Reliable, proven performance.
- Uses less power in sleep mode.
- Desk top accessories: calculator, appointment calendar, note pad and personal file system.
- Whether you prefer the HCT or new CET with typeahead, you will enjoy the lowest total cost of ownership and a 5-year warranty.*

Call for a free demo.



Cumulus Technology Corp.
1007 Elwell Court, Palo Alto, CA 94303
For more information call: (415) 960-1200
(800) 648-6004 Fax (415) 960-3522

See us at ICMS Booth # 94

*Continental USA and Canada only.

CIRCLE 242 ON READER CARD

How Kelly unleashes HP performance.

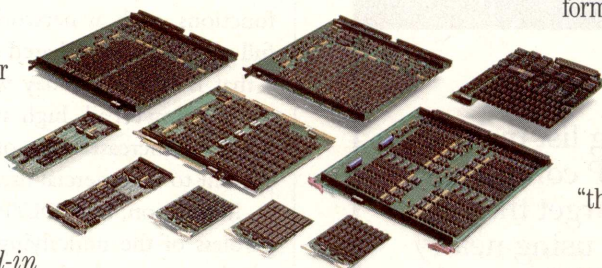
It's a Kelly tradition. Taking HP system performance to the maximum. Cutting through the restrictions. Overcoming the limitations — whether posed by CPU, memory or I/O.

We've worked at it. Putting together solid HP system expertise — hardware, software and applications. Developing the tools. Delivering on promises. Establishing ourselves as "the HP performance people."

Who else would be first to ship *add-in memory for the new Spectrum-class systems*? 16-MB modules that get the best from that memory-hungry RISC-based HP Precision Architecture (HPPA). They're the first of various performance-boosting Spectrum-class products you can expect from Kelly.

And take our "classic" HP 3000

memory upgrades. The fastest available. With more board configurations than you'll find anywhere — from 1 to 16 MB. There's



Kelly offers a broader line of HP-compatible memory products than anyone, including HP.

also our *XL/3000 RAMDISC* — up to 112 MB of plug-in solid-state disc — that boosts application productivity as much as 50%. Instant reads. Instant writes. With no added MPE overhead. And here again,

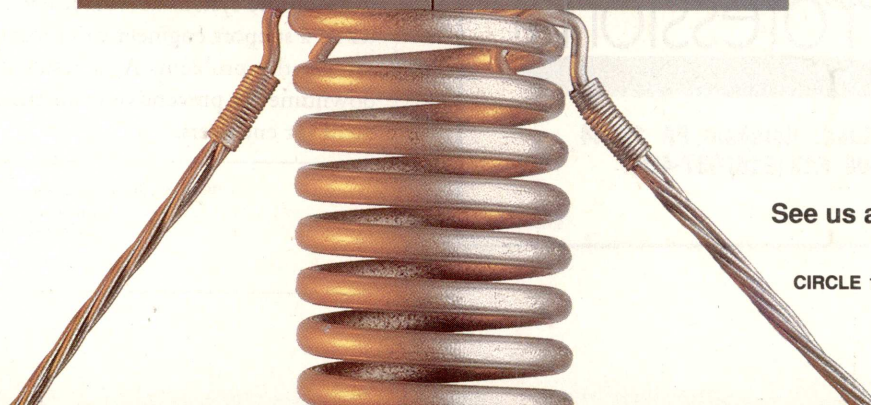
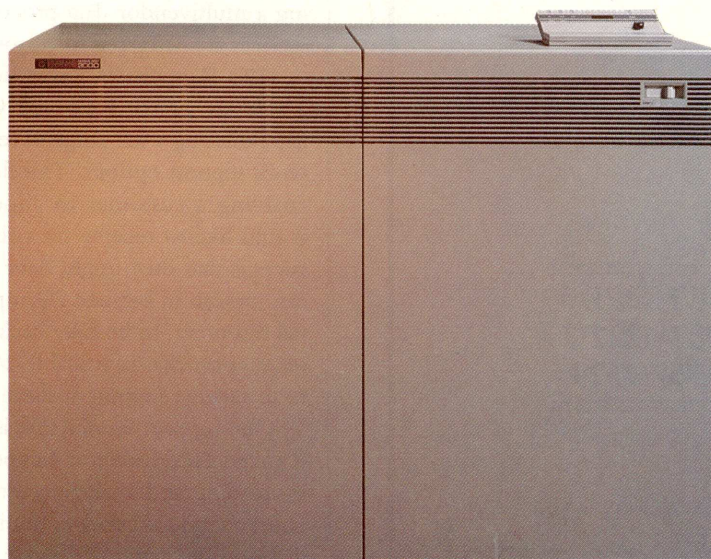
there's more to come.

A final point. When a Kelly product is ready, it's ready. Count on delivery. Performance. And reliability — attested by MTBF's exceeding 60 years, 20,000 units in the field and our Lifetime Memory Warranty.

Write, phone or FAX today. Learn more about how we've become "the HP performance people."

KELLY
COMPUTER SYSTEMS

1101 San Antonio Road
Mountain View, CA 94043
415/960-1010
Telex: 4931648 KELLY UI
Fax: 415/960-3474



See us at ICMS Booth # 19

CIRCLE 185 ON READER CARD

HP Professional's Mailing List Delivers Your Sales Message to Buyers

HP Professional's mailing list includes over 35,000 buyers of HP computing products and services. Target the ones most likely to buy yours using nearly 200 free selects, including demographic, geographic, CPU type and more.

Lists are updated in-house daily to guarantee accuracy and unmatched quality. Quality that reflects the fact that HP Professional's BPA audited circulation is made up of 100% qualified buyers.

Put the power of
HP Professional's mailing list to work
for you.

Call JANE HOPE
at (215) 957-4221
FAX (215) 957-4624

HP Professional

101 Witmer Road, Horsham, PA 19044
(215) 957-1500 FAX (215) 957-4264

3003V-(M/Y)

FEIBUS: What features will HP add to OSF/1 for the commercial market?

GUIDON: OSF/1 provides the core technology; it's up to the commercial vendors to beef it up for the commercial marketplace. There are several key features and facilities that we feel must be added to OSF/1 before our commercial customers can use it. These features are available today in HP-UX.

For example, OSF/1 does not provide [certain important] functions, such as networking. We need to provide the same full set of standards-based networking environment with OSF/1 that is available today with HP-UX. Other HP-UX features such as PowerFail, high availability, system administration capabilities, increased ease-of-use, and on-line diagnostics are important to commercial users.

In addition, high OLTP performance needs must be met, regardless of the underlying technology. Subsequently, we will continue to work closely with top RDBMS vendors to ensure that the Series 800 continues to be the UNIX OLTP performance leader even while we move to OSF/1.

FEIBUS: Okay, the hardware handles power failures, disk and cpu faults, and such. What happens if these backup systems fail? What can a commercial UNIX customer expect from HP?

GUIDON: HP has [established] the Worldwide Customer Support Operations (WCSO), that delivers support services, from designing a network to disaster-recovery services, to maintaining a multivendor data processing operation. All HP's support services are delivered to customer sites by HP support engineers.

HP's Response Center network also falls within WCSO. There are 27 HP Response Center hubs located in 24 countries, offering a full range of remote hardware, software and network support options. This flexibility meets customer needs by enabling a customer to choose the amount of support they would like to receive on a single system or on a collection of systems that they might have networked together. A customer can choose to balance HP support services with its own internal resources, to be fully backed by HP's on-line response center support that is available 24 hours a day, seven days a week, or to receive support at some level in-between.

One support service that is available to Series 800 customers is called HP Predictive Support, which can prevent problems by reading and analyzing error logs related to various system components. When a potential problem [is detected], the software on the system automatically calls the HP Response Center so a support engineer can proactively call the customer and resolve the problem. As a result, the customer can schedule downtime for preventive maintenance at times that are convenient for end users.

Would you like to continue to see articles on this topic?

Circle on reader card
yes 342 no 341

Tomorrow morning it's business as usual.

**You can rest assured
when your HP computer
systems are covered
by the HP Disaster
Recovery program.**

Within just 24 hours of your notifying Hewlett-Packard, our team of technical experts and recovery resources will help put your business back on track. Quickly and efficiently.

Like no one else can.

The HP Disaster Recovery program offers you a complete solution that can be tailored to fit your needs—from up-front planning and rehearsals to local on-site assistance. Round-the-clock support at our recovery centers swiftly gets your critical applications up and running.

**Take the first step *today*
to protect your business
tomorrow.**

Call for a *free* copy of the eye-opening industry overview, *Disaster Recovery Executive Report*. **1-800-637-7740, Ext. 2894.**



CIRCLE 118 ON READER CARD

TALE of Two FORMS



THIS IS THE FORM THAT
2^{HIGH} PRINTED.

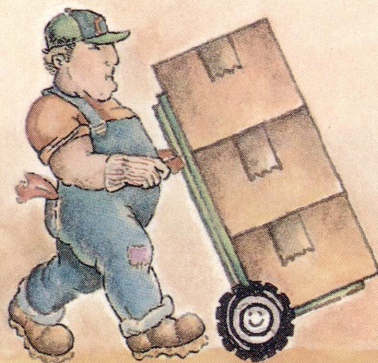
This is the Salesman taking
your order for the forms that
2^{HIGH} Forms Company printed.



This is the **2^{long}** time that passes
while you wait for the forms
that **2^{HIGH}** printed.

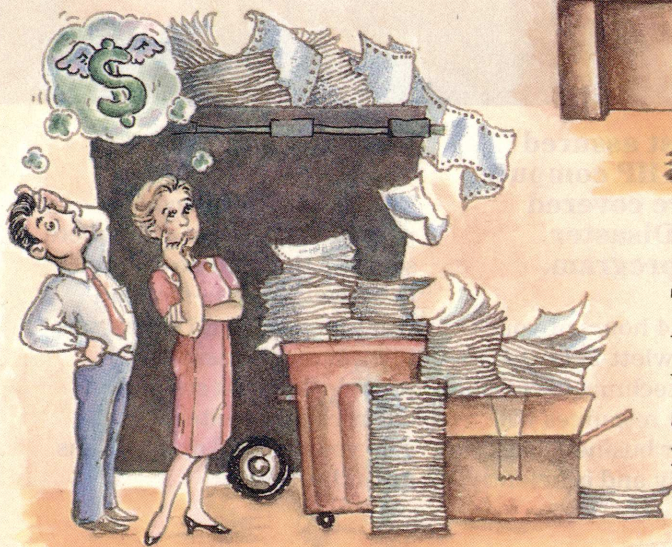
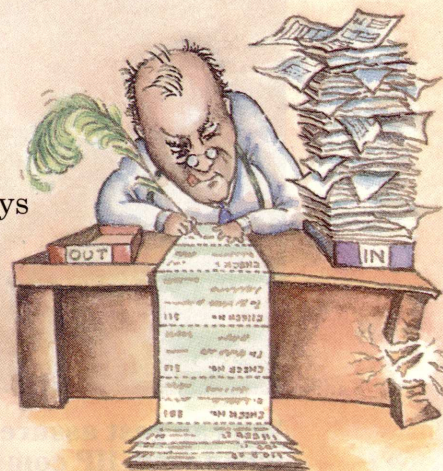


This is your **2^{big}** warehouse
that stores the forms that
2^{HIGH} printed.



This is the **2^{many}** trips lugging around
the forms that **2^{HIGH}** printed.

This is the **2^{busy}** accountant who pays
for the forms that **2^{HIGH}** printed.



This is the **2^{much}**
waste that's created
when you throw
away the forms that
2^{HIGH} printed.

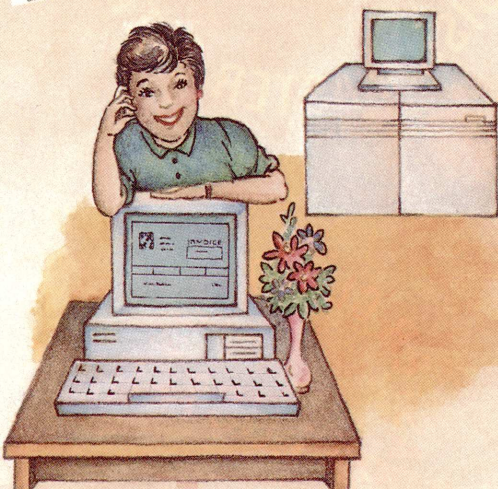
invoice

Hartex Industries
4189 Industrial Drive
Dallas, Texas 75202-4189
Phone 1-800-767-0611

QUANTITY	UNIT PRICE	AMOUNT
100	12.00	1200.00
50	24.00	1200.00
TOTAL		2400.00

Thank You
ORIGINAL

THIS IS THE FORM YOU LASER PRINTED USING FORMATION.

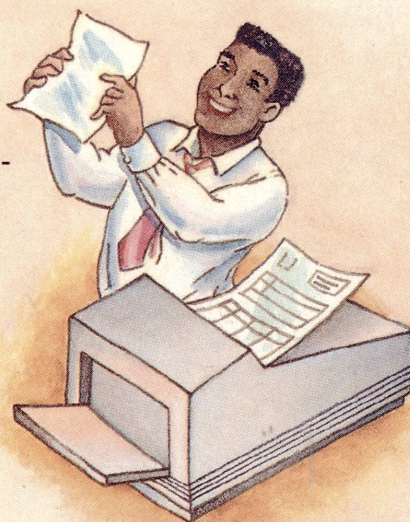


Design and edit your own forms on a PC with our easy drawing program. Upload the forms to your HP 3000 and compile them into standard environment files. When you need a form, your HP 3000 automatically merges your form with your application data and prints completed reports on any HP laser printer,

including the HP 2680/88, HP LaserJets, and the new high speed HP 5000 family of printers.

With FormationTM, you've eliminated the ordering, shipping, storing, lugging and unnecessary scrapping of obsolete forms. You've also eliminated having to reprogram your applications every time a form changes. Just think of all the time and money you'll save using Formation.

So bring it all under one roof and under your eye. With Formation.



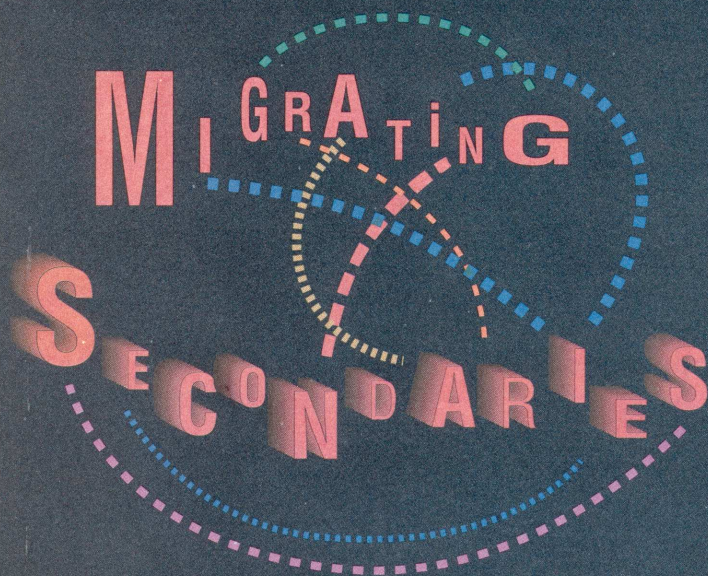
For more information about how electronic forms can save you money and to order your free evaluation copy of Formation call 1-800-767-0611.

Tymlabs

Tymlabs Corporation 811 Barton Springs Road Austin, TX 78704 USA (512) 478-0611 Fax (512) 479-0735
Tymlabs (UK) Ltd. Munro House, 9 Trafalgar Way Bar Hill, Cambridge, UK CB3 8SQ 0954-780088 Fax 0954-780001

CIRCLE 265 ON READER CARD

Complaints



Cure

As of 920105, Adager's new algorithm puts secondaries in their best logistic position on MPE V, MPE/XL and MPE/iX (POSIX).

These Adager functions take advantage of the new technology:

- Master Capacity Change
- SearchField Redefinition
- Master Repacking
- Master Dataset Fix

Besides giving your master datasets a new lease on life, these Adager functions run even faster now.

IMAGE/3000 Databases

TurboIMAGE Databases

TurboImage/XL Databases

TurboIMAGE/iX Databases

Adager

Hard to swallow for Spectrum?

Not at all, since Adager fees are independent of HP3000 computer type.



Downsizing

HP's Mainframe
Alternative
Program
Takes Off

PAGE 48

Choosing The
Right Path
Requires A Look
At Your Whole
Operation

PAGE 52

Downsizing

Mainframe Alternative

BY TIM CAHOON



With An Aggressive

New Program,

HP Has Redefined

The Buzzword

Of The '90s

AS THE EXCESSIVE '80S GAVE WAY to the frugal '90s, downsizing quickly earned buzzword status and soon afterward began spreading fear and anxiety among MIS managers throughout the land. Cost-conscious corporate executives suddenly were quite curious as to why their organizations' computer systems cost so much to run.

The concept spurred new questions among corporate managers. Is it possible, as "experts" say, to move from minicomputers to PC LANs, or from mainframes to minis? Would the savings *really* be that great? Could the same amount of work be accomplished on the new platforms? Aside from the big questions raised in the boardroom, there arose many tangential issues. Meanwhile, the folks responsible for implementing and maintaining systems had an entirely different set of questions.

MIS managers wrestled with the problems associated with such a major transition. Was this downsizing really a strategic consideration, or was management being sold a bill of goods? Could the new systems handle the company's data processing requirements? Were the appropriate applications, databases and operating systems available? And then there were the costs associated with retraining staff and migrating the existing applications. Clearly, the questions outnumbered the answers.

Although the term Mainframe Alternative grew out of a specific campaign geared toward IBM mainframe shops, it now applies to any data processing environment. To better understand the reasons why users are both diversifying and/or moving out of their centralized mainframe environments, it helps to look at a typical IBM mainframe shop. IBM mainframes, after all, are the predominant big iron in the market.

At the center of such a shop is a large cpu, usually a water-cooled model, which may not have much more horsepower than a venerable

HP 3000 Series 70. While the system may be accessed by several hundred terminals, most data is entered into intermediate files, and used to update databases in batch. Some online functions may exist, but they're usually strictly for inquiry. Most applications are standalone with very little direct linkage between them. If you need to correlate data from several applications (from sales and financials, for example), the process is most often done via a batch reporting system. If you watch an IBM mainframe user closely, much of his time may be spent inside an editor, modifying and submitting batch jobs. The bulk of the remaining time is spent waiting for the output.

Even when migrating between platforms *within* the IBM world, it's very common to perform massive conversions. And although there's compatibility within some families of processors, there also is a lot of incompatibility. This concept is foreign to HP 3000 market. Even today, software written for the oldest HP 3000 will run under MPE/iX. Similarly, the HP 9000 Series 800 family of UNIX-based business servers provides top-to-bottom compatibility, with all models using the same PA-RISC architecture and HP-UX operating system.

Every MIS manager today understands that management requires quick access to corporate data. Therefore, there exists a need for true online applications that are directly linked, enabling one user to interactively update or make inquiries of several databases simultaneously. Information must be accessed directly on the terminal without having to wait for a batch job to finish. Conversely, HP environments provide batch process-

ing for those who need it, while enabling users to retrieve and update data on demand — virtually unheard of in most IBM mainframe shops.

Need Identified

HP RECOGNIZED AND UNDERSTOOD these and other problems faced by the IBM user community, and realized that its popular and robust line of PA-RISC systems represented a viable option. And so the Mainframe Alternative program was christened on January 1, 1991. The program was at first directed specifically at Fortune 1000 IBM mainframe shops. Special teams were formed to focus on the project, with initial target sites including users of the aging IBM 43XX processors.

Increasingly, these 43XX shops are reaching the end of the processor family and simply need more horsepower. Others are faced with rising operating costs or simply are hungry for the advantages promised with the newer IBM systems. IBM's new direction for these shops centers on its ES/9000 systems and the SAA architecture. In either case there are no easy solutions — in either case there are easy options — a massive migration effort faces all those who leave the 43XX family. Now is the perfect time for those users to consider other vendors, such as HP, to help them move away from aging, proprietary architectures and into an open, lower-cost alternative.

Because HP users initially targeted were facing such considerable application migrations, they established partnerships with VABs to bring the necessary migration tools and skills to the marketplace. Systems integrator Innovative Information Systems Inc. (IISI) was one of the first members in the new organization. When HP announced their first sales under the new program, IISI was ready with a product called Conveyor licensed from Infosoft. This mainframe application migration tool was instrumental in adding to the initial success of the project. Similarly, VISystems' VIS/TP conversion tool, a COBOL compiler and CICS translator, facilitated the migration.

The Mainframe Alternative's kickoff year was particularly successful, with HP "stealing" over 50 IBM mainframe sites. But it wasn't the HP teams alone who accounted for this success — other factors contributed to the program's initial success.

PA-RISC has proven to be a stable and highly expandable architecture, allowing the HP 3000, for example, to expand at a compound annual growth rate (CAGR) of 75 percent. In November 1990, prior to the IBM ES/9000 introduction, the HP 3000 Series 980/200 was more powerful than 75 percent of installed IBM mainframes. And even though HP only promised a 50 percent annual growth rate, it has delivered more, and should continue to do so for the foreseeable future. At this point, the HP systems offer comparable performance at lower costs, and the promise of future performance increases and more powerful models will only bolster this appeal.

The ES/9000 Model 440 is comparable in performance to the HP 3000 series 980/200. Although this particular model is

Downsizing

air-cooled, it's still priced at \$2,402,000, as opposed to the modest \$1,050,000 price tag of the HP system.

The ES/9000 Model 340 is a water-cooled system that is comparable with the HP 3000 series 980/100. The price tag of this beauty is \$2,127,000 making the HP system a veritable steal at \$675,000. The ES/9000 water-cooled processor complex also requires 10 times the footprint and power consumption as the HP 3000. Maintenance costs are estimated at nearly three times that of the HP 3000.

Likewise, HP 9000 Series 800 business servers offer greater performance than IBM's 3090-280J and ES/9000 Model 500. HP 9000 business servers also offer the added appeal of PA-RISC coupled with rich commercial HP-UX functionality.

The initial sites which converted from IBM to HP reported large cost savings. One site estimated their annual savings at \$30,000, while a larger organization projected \$1 million in savings as a result of moving to the HP platform.

More Than Mainframes

YET, WITH SO MUCH ACTION (and potential) at the high end, HP hasn't forgotten about the smaller IBM midrange sys-

tems. At the low end of the spectrum, IBM's loyal System/36 users face the choice of either staying with their current discontinued systems or migrating to the newer, more powerful AS/400 line. Going with an AS/400 system isn't a perfect solution — and IBM has encountered considerable resistance to this migration by System/36 shops. The choices boil down to running the AS/400 in System/36 emulation mode — sacrificing performance — or performing a complete (and costly) application conversion to native AS/400 mode.

Today, several vendors supply software to create a System/36 environment or migrate the Systems/36 applications seamlessly to the HP 9000 Series 800. Even when running these emulation products the performance of these UNIX systems give the System/36 user a tremendous performance boost. By moving to the UNIX-based environment, users gain the benefits of portability, scalability and open systems — no longer locked into the proprietary Big Blue world. Another factor is the lower cost of UNIX platforms as compared to the AS/400. Maybe this is why thousands of the System/36 users are looking to the UNIX world rather than the AS/400. It isn't because the AS/400 is a bad machine; it's far from that (it's IBM's most successful product). But it's proprietary and expensive.

Migration Considerations

The majority of mainframe alternative considerations are obvious. They include migration project planning, tools, methods and services, target system architecture, software, standards, procedures and training. Some of the less evident, but no less important, considerations include:

Physical Security — Mainframe systems routinely are kept in the traditional "glass house" for security. Smaller systems, especially those in remote locations, may be more prone to environmental damage, theft, vandalism or accidents. Access control and isolation may often be required to maintain necessary security levels.

Some vendors provide "hardening" of processors for use in potentially unfriendly environments, and such measures can add significantly to equipment costs. Many times, an office or closet can be enhanced to provide necessary environmental and access control for midrange systems.

Soft Security — Elaborate software security systems and procedures, beyond simple password protection, have evolved for mainframe systems. Systems and data are often proprietary assets providing an organization with its competitive advantage. Consider the level of available soft security required and available for applications and data ported to these more accessible systems.

Disaster Recovery — The above issues are preventative in nature. But what if you need a cure? How will the regular system backup procedure change? Where will the backup media be stored? Does the hot-site provider have the equipment necessary to restore the servers? Is the company's strategic corporate plan stored on a single PC's hard drive?

The need for periodic backups will never diminish, and off-site

storage is still most desirable. Good results have been achieved by using a LAN to backup PCs onto a server as opposed to using diskettes on a "sneaker net." If a mainframe host remains in place, the host network may be used to upload data from the servers and then employ the existing host backup procedure.

Audit/Control — Remember the folks from headquarters who love to help. It was difficult to account for everything when it was centralized on the mainframe, but the task of providing auditable applications with management controls is compounded when the applications are dispersed.

Secondary Storage — Beware of squeezing large applications or large databases onto small systems. In LAN environments, consider a UNIX-based server. The case for porting applications to midrange systems with a mainframe-class DBMS server is a strong one. Multiple systems managing partitioned data complicates the issue.

Existing Peripherals — "Don't throw out that good stuff," says the office Pack Rat. It's true — Protocol converters, emulators, bridges, gateways and adapters may be unsupported, but different communications protocols can usually be overcome.

Decentralizing your horsepower doesn't necessarily entail decentralizing the management responsibility for your systems. Information remains a key asset requiring prudent management. Although end users are becoming increasingly capable of supporting their own information processing needs on a local level, sophistication in software engineering and management skills are still vital concerns. — Philip Seufert, senior account executive, Wesson, Taylor, Wells & Associates Software Consulting Services (Valley Forge, PA).

Spreading The Word

DURING THE SUMMER, HP sponsored an audio teleconference for IBM sites interested in the program. This conference featured John Logan, an analyst from the Aberdeen Group Inc. (Boston, MA), Peter Burrows, director of corporate information services from Foxboro, and Wim Roelandts, vice president of the Network Systems Group for HP. Sites participated via speaker phones from their own locations. After each presentation, each site was given the chance to ask questions. As the names of the companies participating were read aloud, it sounded like a who's-who in America. Cities, government agencies (state and federal) and a broad spectrum of corporations, both large and small, participated. Each one left with a better understanding of the strategic impact the Mainframe Alternative program could have on their respective bottom lines.

HP went even further last fall by announcing their new consulting service dubbed the Open Software Environment (OSE). This service, currently aimed at the Fortune 500, helps users create a non-vendor specific "road map" for implementing an open systems approach to data processing. The solution is tailored to users' unique needs and provides a two- to five-year plan to accomplish your open systems goals. The solution isn't

limited to HP, or HP VAR products. The team will recommend the best products available regardless of manufacturer.

HP believes that while the open systems picture is far from complete, it is possible to migrate to an open systems environment existing products in the marketplace. No longer do you need to rely on one vendor's proprietary product, such as DEC's Pathworks software, to supply the solution. While developing an active, working open systems environment may not be easy, it will certainly give you a future advantage.

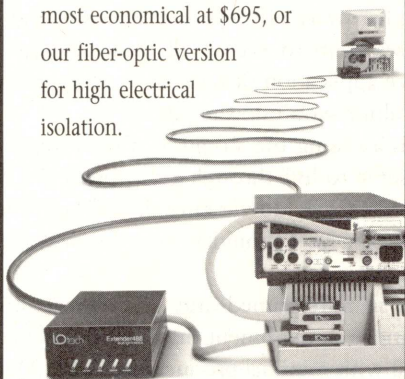
From the IBM experience HP has had this year, you can see that the term downsizing has taken a whole new turn. Even though to many people it still just means dumping what you have for a smaller platform, to the initiated it means applying the most relevant solutions to your business needs and still saving money. That, in a nutshell, is what mainframe alternatives are all about. It also would be nice to think that the success HP has had against IBM this year was the reason for their latest reorganization. Meeting customers needs is what it takes to stay in business today. That certainly appears to be HP's goal.

Would you like to continue to see articles on this topic?

Circle on reader card
yes 344 no 343

Extend IEEE 488 Up to 4000 ft

Remotely control up to fourteen IEEE 488 devices from your computer with IOtech bus extenders. Choose our fastest model at 840 Kbytes/sec, our most economical at \$695, or our fiber-optic version for high electrical isolation.



IOtech

25971 Cannon Rd. Cleveland, Ohio 44146
tel (216) 439-4091 • fax (216) 439-4093

CIRCLE 129 ON READER CARD

FULLY AUTOMATED

**Backup, Archival & Retrieval
in Multi-Vendor Networks for:**

**HP-UX
Apollo
SunOS
IBM AIX
DEC Ultrix**

**Sil. Graphics
AT&T
Interactive
DOS
Novell
MPE**

HIBACK & HIBARS

- ✓ Open Systems Solution
- ✓ All Current Backup Media Supported
- ✓ Locally, or across LAN to remote Device
- ✓ Unrivalled Support of rewritable Optical Disc "Jukebox"

Hi-Comp America
419 Canyon Ave., Suite 215
Ft. Collins, CO 80521-2670
Phone 1-800-323-8863
FAX (303) 224-9702

H · I · C · M · P
AMERICA INC.

CIRCLE 279 ON READER CARD

DOWNSIZING

The Tasks At Hand

BY GORDON MCLACHLAN

Adding A Server To

Complement Your

Mainframe? Doing A

Full-Blown Migration?

Choosing The Right Path

Will Underscore The

Bottom Line

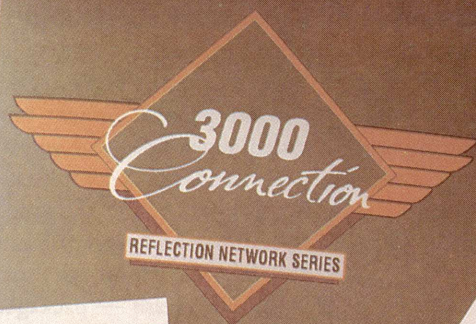
DOWNSIZING IS A PRETTY IMPRECISE TERM. To some organizations, it's as easy as trading in some dinosaur mainframe or mini for a smaller, cheaper, faster box in the same product line. For others, it's a full-blown conversion from a mainframe to a mini or a network of workstations. A few brave souls feel compelled to undertake a complete re-engineering of their systems, and yet others won't even touch their existing stuff, being content to downsize only their new applications.

Whatever the scale of the effort, the goal of downsizing is clear: Saving money. The more money you can save, the better you have downsized. To get the maximum benefit from downsizing, you have to look at your whole operation and make some real hard decisions. It's not too tough to follow the hardware price-performance curve, but software and personnel expenses seem to eat up all those savings. A comprehensive plan has to shave application development, support and operations costs. Cheap silicon alone won't do the job.

The first order of business is assessing the strength of your application suite. Do your systems deserve to live through a downsizing? Like any other system upgrade or conversion, downsizing should be driven by your application requirements, which should in turn be driven by your organization's business requirements.

The last ten years have seen an unrestrained orgy of personal computing, networking and applications development that have left American businesses to foot a huge bill with minimal productivity gains. Managers are truly hard-pressed to come up with solid productivity gains directly attributable to computer systems. Part of the problem is bad techniques or inadequate metrics for productivity measurement, but much of the blame lies with badly implemented systems and systems that automate bad business practices.

**See Us At ICMS
Booths 65 & 66**



TELNET
CONNECTION TO UNIX

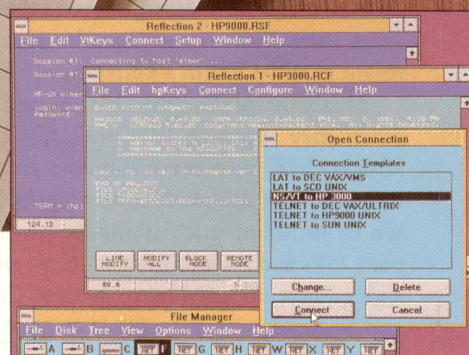
PASSENGER NAME: YVONNE HEFLIN
X/O FROM: SEATTLE/TACOMA INT'L
X/O TO: CONNECTIVITY CITY
CLASS: FIRST CLASS
DATE: 6-1-92
TIME: 10:00 A.M.
STATUS: POSITIVE SPACE
CARRIER: WALKER RICHER & QUINN, INC.
COUPON NO: 4132
TOUR CODE: 980756

LAT
CONNECTION TO VAX

PASSENGER NAME: YVONNE HEFLIN
X/O FROM: SEATTLE/TACOMA INT'L
X/O TO: CONNECTIVITY CITY
CLASS: FIRST CLASS

NS/VT
CONNECTION TO HP 3000

PASSENGER NAME: YVONNE HEFLIN
X/O FROM: SEATTLE/TACOMA INT'L
X/O TO: CONNECTIVITY CITY
CLASS: FIRST CLASS
DATE: 6-1-92
TIME: 10:00 A.M.
STATUS: POSITIVE SPACE
CARRIER: WALKER RICHER & QUINN, INC.
COUPON NO:



That's the ticket!

Multiple hosts. Multiple servers. Multiple protocols.

Go where you want to go! Access all your hosts and servers from your PC — at the same time. Take the 3000 Connection from the Reflection Network Series™ software and travel your network in style.

Explore multiple sessions to one or more hosts, or work on PC LAN and host applications simultaneously. Switch among sessions without rebooting. Run a number of host and server protocols concurrently from a single network interface card, using very little memory.

Only the 3000 Connection takes you so far. Reach HP 3000, HP 9000, Digital

VAX, and UNIX, and other hosts. (Even IBM mainframes through TCP/IP.) Use Novell and other LANs at the same time. Link up over any major network, with no need for DTCs or gateways.

Put Reflection® terminal emulators to work with the Reflection Network Series and get a lot more mileage. Like the most precise HP emulation for DOS and Windows. Powerful command language. And Reflection's exclusive connection manager, for easy multi-session management.

The 3000 Connection — for all the destinations in your changing world.

Transfer or upgrade, now!

Users of any version of HP Network Services for MS-DOS or OfficeShare qualify for substantial discounts.

Call now for more information.

1-800-92NETWORK

Hurry! Limited time offer!

REFLECTION®
Network
SERIES

REFLECTION®
SERIES
SOFTWARE

Walker Richer & Quinn, Inc.

CIRCLE 145 ON READER CARD

Downsizing

Systems developed or customized in-house are a good place to start looking. In many industries, repeated restructuring — and downsizing — has left behind a business that looks little like the one that the old systems were supposed to model. If your old applications no longer fit the organization, re-engineering may be in order, and will provide the real impetus and payback for your downsizing effort. Only after evaluating the state of your current systems can you decide if a simple box swap is enough, or whether it's time to make some major changes.

The Conversion Question

IF YOU'RE LUCKY, your applications will be just wonderful, and you'll find that merely replacing your obsolete hardware will net some significant savings. Decreased reliability, the risk of extended downtime, and comparatively higher maintenance and upgrade costs on older equipment can make a trade worthwhile, even if you don't do anything to convert or restructure your systems.

Some systems, like IBM's 30xx mainframes, are traditionally and notoriously manpower-hungry. Every operating system upgrade is an adventure for a team of assembler hacks, and even changing network configurations is overly exciting. In such an environment, downsizing should take dead-aim at those operating costs. Not to mention the plumbing and water bills. It might even be worth a conversion.

That's the philosophy that HP and others are trying to sell when they approach IBM midrange customers who are faced with a climb into the mainframe arena, or who want to free themselves of the mainframe support burden or upgrade costs. Under its Mainframe Alternative program, HP and allied third-party ISVs and systems integrators are providing conversion tools and application software to facilitate the move from IBM 43xx and 30xx systems to the HP 9000 Model 800 PA-RISC Business Servers.

Mainframe Alternative partners Infosoft and VISystems provide conversion programs which convert COBOL/CICS code to HP COBOL or C, respectively, and run-time modules that imitate the IBM mainframe environment. 4GL vendor Information Builders' Focus is available on a variety of platforms, as is the multiplatform Oracle database.

If a conversion effort will be large enough, or if applications require major changes, it may be necessary to replace them, or rewrite them entirely.

Replacing home-grown systems with packaged software should be less labor intensive, but only if you can refrain from modifying the packages excessively. This sounds logical, but it's amazing how logic flies out the window when it comes to using canned software.

Invariably, every organization has some policies, procedures and precedents that get in the way of using any software package that wasn't custom coded. If there aren't, some high-level

user will decide that there are. There's always a nugget of truth buried in the reasons for why the system has to be changed, but a large part of the problem is users' unwillingness to be told how to run their outfits by some computer jockey.

Custom development can also be a nightmare. Wholesale system replacement can get so drawn out that you wind up with two systems and a completely blown development budget. Unless you've got the planning and development staff to handle it, and look at downsizing as a long-term proposition, it's probably best to back off from this alternative.

In either case — packaged or custom software — acquisition and development should be preceded by a serious study of the business processes that have to be computerized. If goofy practices are leading you toward goofy systems, you absolutely have to get top management support for changing the way you do business. It goes without saying that user organizations should be given every opportunity to help select or design the software they'll be using so it doesn't become an implementation problem. A delayed downsizing is effectively an upsizing, and that won't be appreciated.

Standard Programming Tools

IF CODING AND MAINTENANCE are going to be your own responsibility, it's important to choose programming tools that are up to the task. It's also important to get tools that your MIS department is capable of using effectively.

Popular mythology holds that UNIX-based systems have to be coded in C so that you can get at all those nifty APIs, code-generators and programming toolkits. If you go off on a nut and decide that all your new development has to be object-oriented, you might even be tempted to wade into C++.

It's a noble goal, but the retraining and programmer downtime that switching from old standby tools entail will probably outweigh the benefits. The much-maligned and reputedly dead COBOL may still be your best bet. For most business applications, working in COBOL will be more productive for your developers, and much friendlier to your maintenance staff. COBOL is weak in object-orientation, but until object-oriented concepts are more widely understood, and system object management issues are worked out by the standards bodies and vendors, OOP may be more trouble than it's worth. Until programming productivity metrics are available that truly demonstrate its advantages, object-orientation may sound like a better deal than it is.

Scalable Hardware Platforms

SCALABILITY OF THE target system is also critical factor for your future success. How much headroom will you have left in the product line? If your requirements will keep you pressed against the performance ceiling, you have legitimate cause for concern. Many HP 3000 "classic" shops butted their heads

against disk configuration and memory limits for years before getting real relief in the form of PA-RISC, and the conversion to that processor family was not always clean.

One major advantage of using widely scalable hardware is that you can limit the number of different platforms that you have to support. Hence, you get instant de facto standards. Instead of converting to a different vendor or product line when your performance requirements change, you can just move up or down within a single product line.

Open Systems

IF SCALABILITY IS A POTENTIAL problem for you, open systems are in your future. One of the goals of open systems, whether of the UNIX persuasion, or the newly fashionable POSIX-compliant "open proprietary" systems like MPE/iX, is to provide good application portability across a wide range of systems. Here's where we can make an important distinction between standards and standardization.

Even though there is no clear operating systems standard, the standardization of application programming interfaces is proceeding at a rapid rate. Compliance with the POSIX specifications for system calls and language functions, the OSF Distributed Computing Environment (DCE) and Distributed

Management Environment (DME), and other emerging standards for object-orientation and SQL database access, are allowing vendors to build proprietary operating systems that are supersets of the mythical UNIX standard.

Portability can be considered an extension of scalability. It's an escape hatch for when you run out of headroom and have to convert your code. It's also the less preferable option. It's always easier to move within a product line than between them, no matter how open everybody claims to be. It may be worth the pain and expense to go through the mother of all conversions one time, but it doesn't make much sense to go through that rigmarole more than once. POSIX compliance is a good starting point for your system evaluation.

Standard Networks

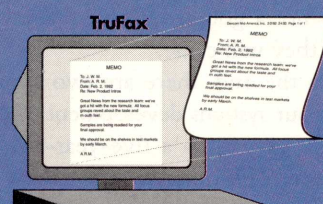
EVEN THOUGH DOWNSIZING presents a golden opportunity to switch over to standards-based networks and open systems, it still might not be safe to take a definite stand on the issue.

When converting within the multiuser system paradigm, networks play a different role than they do in workstation-based client-server schemes. This is especially true if you are using new, downsized systems to offload work from an existing mini or mainframe without replacing the old system entirely. In this

Why fax?

When you can TruFax...

Directly from your HP 9000



TruFax™ allows you to:

- Send, receive and view faxes
- Fax directly from word processing software
- Fax directly from application software
- Extend E-mail to off-network offices
- Operate as a "stand-alone" or fax server for fax broadcasting
- Support multiple inbound/outbound faxes
- Fax via Uniplex™ link

Also compatible with IBM RS/6000, 386 & 486, Sun SPARC, AT&T 3b2 (System V), Sequent

To try TruFax, call or fax today.

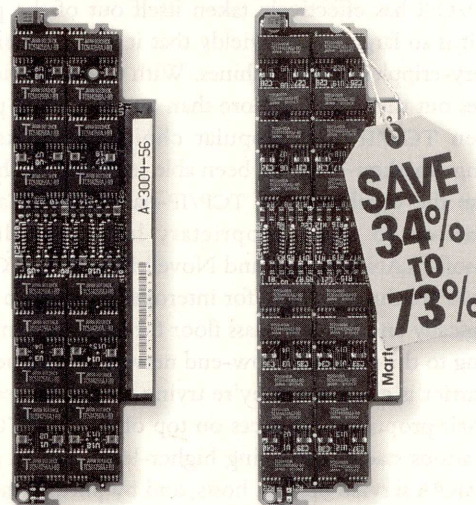
Devcom

Mid-America, Inc.

2603 W. 22nd St., Suite 23, Oak Brook, Illinois 60521
708/574-3600 • FAX 708/572-0508 • E-MAIL uunet!devcom!fax-info

Uniplex is a trademark of Uniplex Limited. ©1992 Devcom Mid-America, Inc. All Rights Reserved.

The only significant difference.



**HP/Apollo
Memory**

**Martech
Megamemories**



Megamemories™ are 100% HP/Apollo compatible. They're made from high-quality components, backed by a lifetime warranty, and even come with a 90-day money-back guarantee. If you're ready to save thousands on memory, call or write: Martech, 1151 W. Valley Blvd., Alhambra, CA 91803-2493
Telephone: (800) 582-3555 or (818) 281-3555
FAX: (818) 284-3092



HP and Apollo are registered trademarks of Hewlett Packard.

CIRCLE 239 ON READER CARD

CIRCLE 220 ON READER CARD

DOWNSIZING

scenario, the need to accommodate the pre-existing systems may outweigh your desire to go with standard networks.

Offloading an IBM mainframe almost certainly means accommodating SNA, and may require you to use IBM's Systems Application Architecture (SAA) as your blueprint. This is especially true if you want to slap some chrome on the user interfaces or engage in some cooperative processing shenanigans. HP provides a set of emulations, programming interfaces and gateways for IBM 3270 communications, LU6.2 Advanced Program-to-Program Communications (APPC), PROFS and DISOSS.

It doesn't help that SAA is half-dead. It's still dangerous, even flopping around on the bottom of the boat. IBM's new-found open systems religion notwithstanding, SNA has to be accommodated, if not embraced with open arms.

Outside the IBM world, you've got a cleaner shot at using the official standards, but even here there are problems because of the need to integrate PCs into your overall architecture, and the lack of solid standards for how to do that.

Unfortunately, proprietary mid- and high-range systems have not scaled well all the way to the low end of the market. That's territory that's owned by the DOS PC clones. Conversely, PC systems have not scaled up to the level of performance needed for transaction processing systems, nor have they adopted many of the same standards.

With a whole different crop of network options at the low-end than we see at the high-end, picking a single network solution is a real pain in the neck. Due to market forces and product positioning, it seems we are forced to make a definite choice between working from the bottom-up or from the top-down.

ISO/OSI has effectively taken itself out of the picture, because it is so large and unwieldy that it is unimplementable on memory-crippled DOS machines. With tens of millions of those puppies out there, this is more than an intellectual problem.

Even TCP/IP — a popular choice in workstation and midrange markets — hasn't been able to penetrate the glass floor because the capabilities of TCP/IP-based servers are weak in comparison to many proprietary low-end solutions like Microsoft's LAN Manager and Novell NetWare. TCP/IP-based solutions are more notable for interoperability than capability.

Logically enough, the glass floor for larger systems looks like a ceiling to the purveyors low-end networks. The need to break that barrier is clear, and they're trying to move upscale by putting their proprietary services on top of standard TCP/IP communications stacks, providing higher-level service gateways to NFS, ARPA service or SNA hosts, and by porting their software to new platforms.

LAN Manager for UNIX Systems and Portable NetWare are the most notable attempts to move PC networks upscale, but these implementations have their critics, particularly in the area of performance. If coded generically enough to be portable between operating systems and I/O subsystems, they lose the performance edge they enjoyed by being so tightly coupled to a specific operating system, as they could be on a PC platform.

Novell has answered this criticism by developing "native" NetWare versions for DEC VAXen, and announcing an agreement to do the same for HP minis. These custom ports will allow Novell to tailor the code to specific systems, and eliminate some of the performance gap.

Complicating matters are emerging remote procedure call (RPC) and transaction-processing standards. These are definitely being driven from the top-down. The preponderance of PC workstations makes their integration necessary, but even the Open Software Foundation, that bastion of interoperability, has a problem with the PC vision thing, and hasn't laid out a good game plan beyond basic print- and file-serving.

The Final Analysis

DOWNSIZING CAN BE a daunting experience. Faced with so many architectural and design issues, and the need to commit to many standards before they are totally clear, it's difficult to devise a foolproof strategy.

Once you move away from a simple box-swap or a straight conversion into the realm of distributed, client-server systems, even the best laid plans can run into unexpected difficulties. Keeping solutions simple will make them more easily implementable. Extreme experiments in distributed databases and the use of nifty new standards and technologies are probably not a good idea unless you can justify the inevitable delays they will cause.

In the end, there are two approaches to picking standards for your systems development. One is to type up a list of standards, give it to a five-year-old with a crayon, and let her choose. The other is to carefully architect your system, study all the standards options and make a careful selection based on properly prioritized criteria. I'm still not sure which approach works better, but the five-year-old will get the job done much more quickly. If that doesn't seem like a very professional approach, make your decision based on what your primary vendor tells you to do. It's almost as effective.

Would you like to continue to see articles on this topic?

Circle on reader card
yes 338 no 337

Infsoft GmbH
Hauert 12a
W-4600
Dortmund 50 Germany
CIRCLE 358 ON READER CARD

VISystems
14755 Preston Rd.
Dallas, TX 75240
CIRCLE 359 ON READER CARD

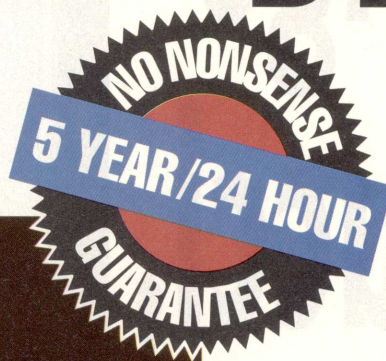
Information Builders Inc. (IBI)
1250 Broadway
New York, NY
CIRCLE 360 ON READER CARD

Innovative Information
Systems Inc. (IISI)
63 Nahatan St.
Norwood, MA 02062
CIRCLE 363 ON READER CARD

Oracle Corp.
500 Oracle Pkwy.
Redwood Shores, CA 94065
CIRCLE 361 ON READER CARD

Novell
122 East 1700 South
Provo, UT 84606-6194
CIRCLE 362 ON READER CARD

Skip The Hype.



If you're like most people trying to keep up with the latest technology, you have neither the time nor the inclination to wade through the typical flowery ad just to get the straightforward information you're looking for. So we'll spare you all the typical hype and get right to the point.

Here at MESA Technology, 20 years of experience and a good amount of common sense have taught us that when it comes to purchasing subsystems, the two most important considerations are reliability and technical support. And to be very direct, no one outperforms us in these two critical areas. Period. But that's only the beginning.

No Nonsense Guarantee

- Five year warranty on all magnetic disk subsystems
- Twenty-four hour swap out of any component that fails during warranty period

Support

- Toll-free hotline for installation and technical support
- Fast, accurate answers from friendly people whose goal is to make your life easier



Reliability

- Our subsystems feature the highly reliable Hewlett-Packard disk drives
- All HP 3 1/2" and 5 1/4" drives have a five year warranty and 150,000 hour MTBF rating

MESA
TECHNOLOGY

8990 Old Annapolis Road
Columbia MD 21045-2179

Boston New York Milford
Philadelphia Richmond

Authorized Hewlett-Packard Distributor

800/888-0567

The following are trademarks of their respective companies:
DEC of Digital Equipment Corporation; IBM of International
Business Machines; Sun of Sun Microsystems, Inc.



Catalyst Program

Compatibility

- All subsystems are compatible with HP, IBM RS/6000, Sun and DEC workstations
- With SCSI 1 and 2 interfaces, they're also compatible with the majority of desktop workstations, including IBM's AT Bus and Micro Channel

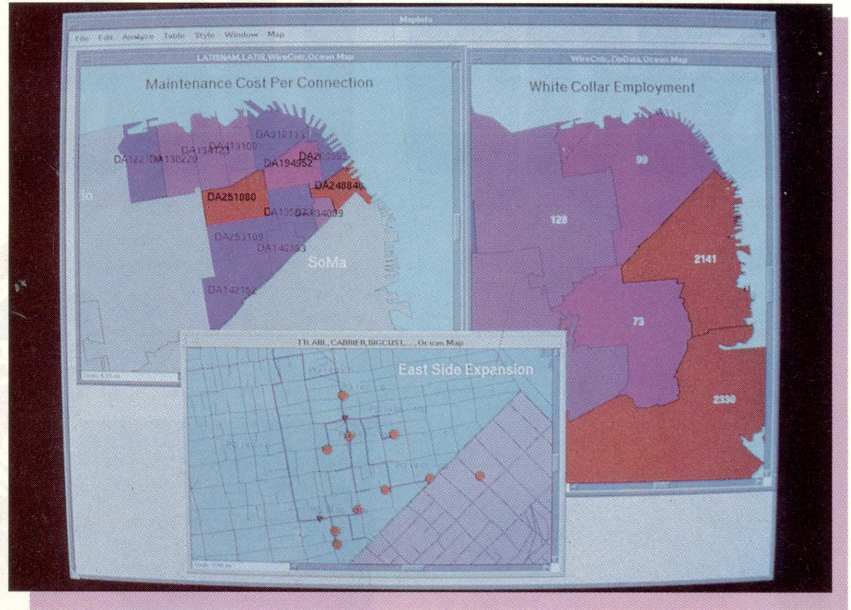
Configurations

- Non-removable configurations in desktop, zero footprint, rack mount and freestanding floor models
- Removable configurations in desktop and rack mount models with shock-mounted canisters

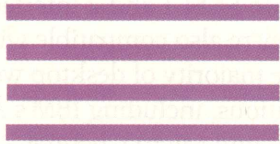
Tape And Optical

- High performance tape and optical solutions are available with the highly reliable Hewlett-Packard line
- Choose from 3 1/2" and 5 1/4" Digital Audio Tape (DAT)
- Multi-function HP optical disk drives combine write-once and rewritable capabilities in the same drive
- 8mm Exabyte cartridge tape drives are also offered

Amerigo Vespucci,



Eat Your Heart Out!



The World Is

Your

Information

Oyster With The

Help Of MapInfo

Where would we be today if not for a certain Italian navigator's interest in maps? Certainly, mapping is one of man's oldest, most useful ways to visualize information. Very few of us would venture out on vacation without a map. Millions of people, from deliverymen to space shuttle pilots, stake their careers, and sometimes their lives, on being able to use accurate maps.

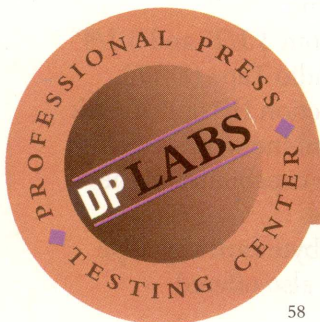
Applying computing power to mapping systems suddenly turns a static map into a dynamic Geographic Information System (GIS). A GIS allows you to organize and visualize your data, creating a whole new view of your world. For example, obtaining a listing of sales territories and customers is one thing, but seeing the same information on a map instantly tells you where you should be concentrating your efforts.

A typical GIS's memory and cpu requirements could easily suck the life out of a mainframe or a minicomputer. Early systems were often difficult to use. With the phenomenal increase in desktop computing power, however, GISs are now found running on PCs and workstations. GISs such as MapInfo place the power and convenience of mapping into the hands of the user.

Description

MapInfo, from Mapping Information Systems Corp., is a GIS that runs on a variety of platforms, including the HP 9000 series. Our test version was installed on our HP 9000 Model 360 workstation running HP-UX 7.0 and Motif.

The product is comprised of three main components. The Browser provides a view of your database in a spreadsheet



By David B. Miller



IMPLEMENT THE FUTURE... CLIENT SERVER, WINDOWS BASED, ACCOUNTING SOFTWARE.

Intuitive leaps in technological development have enabled civilization to progress toward a more efficient and productive tomorrow. The next logical step for your business is VISUAL/XL, the intuitive use, graphical interface financial management software. Smith Dennis & Gaylord once again provides innovation for today's solutions, while continuing to address the future needs of your business. Write, call, or FAX for a free demonstration disk... Discover the next logical step in business software.

**HP-3000
ACCOUNTING SOFTWARE.
FREE DEMO DISK!**



**SMITH,
DENNIS &
GAYLORD, INC.**

3211 Scott Boulevard.
Santa Clara, CA 95054-3078
(408) 727-1870
FAX (408) 562-4187

NAME/TITLE

COMPANY

ADDRESS

CITY/STATE/ZIP

TELEPHONE

FAX

WE EXPECT TO INSTALL NEW SOFTWARE...



3-6 MONTHS



12 + MONTHS



6-12 MONTHS



JUST LOOKING

VISUAL/XL MODULES: • GENERAL LEDGER • PAYABLES • RECEIVABLES • FIXED ASSETS • PROJECT CONTROL
• PROJECT BILLINGS • ORDER MANAGEMENT • PURCHASING/INVENTORY • PAYROLL/PERSONNEL

CIRCLE 497 ON READER CARD

I was up and running

— doing useful

things — with

MapInfo in about

three minutes.



format. Like the Browse function in dBase, it allows you to move through your data, performing queries and editing. The Mapper is what MapInfo's all about. It displays the data in your database on maps which you can purchase from MapInfo or which you can make yourself. Finally, the Grapher allows you to represent your data in a variety of formats such as pie and bar charts, a la Lotus and other spreadsheet packages.

Installation is straightforward. MapInfo's files are extracted using tar and placed in a directory of your choice. A few environment variables are required to insure MapInfo will find some necessary configuration files.

After the software is installed, you must obtain a license key from Mapping Information Systems and start a license daemon on your workstation.

Venturing Forth

I'm not a GIS expert, but I was up and running — doing useful things — with MapInfo in about three minutes. MapInfo is menu- and dialog-box driven, so it's easy to use.

The supplied tutorial files provided an excellent means of exploring the product's capabilities. There's too much to talk about within the constraints of this review to discuss all of MapInfo's capabilities, so I'll touch on some of the things you're able to do with it.

I started by selecting a workspace. Workspaces are collections of related tables containing geographical and textual information. For example, one workspace I used contained tables containing selected information on the entire world, U.S. states, major U.S. cities and the streets, zip codes and restaurants in San Francisco.

Starting with the European map, I was able to scroll westward to the west coast of the U.S. For a closer view, I selected a Zoom In tool from the tool palette and dropped down to a screen showing a view of San Francisco from about 10 miles up.

Because a table of San Francisco streets is part of this workspace, I could search the map for an address. Typing in a correct address caused MapInfo to place a marker symbol on the map.

San Francisco restaurants contained in another table in this workspace were marked on the map as well. Grabbing the Information tool from the tool palette and clicking on one of the markers produced detailed information about the restaurant. Using the same tool, I could click on any street in the map to produce the street's name.

A powerful MapInfo feature is that of thematically shading maps. For example, I was able to tell MapInfo through a dialog box that I wanted to distinguish the restaurants on the map by type of cuisine (another field in the restaurants table). MapInfo created a legend of restaurants by cuisine and marked them appropriately on the map.

Having my fill of San Francisco restaurants, I moved on. Loading a workspace representing the states in the U.S., it was easy to use MapInfo to determine distances between cities. MapInfo's Analyze function allowed me to hunt for cities in particular states. Then, I could use the mouse to determine the distance between any two cities. By continuing in this fashion, MapInfo produced a cumulative total of straight-line distances between all the cities encountered on the tour. To make this exercise more useful, you can pur-

chase a map of highways from MapInfo. Performing this same exercise would then yield driving distances between cities, which could be more useful to you.

A core function of MapInfo is to relate geographic data residing in tables to points on a map. This function is referred to as geocoding.

I opened another workspace of San Francisco data. To show additional MapInfo features, I opened a table of bank customer data that was in dBase format, not MapInfo format. MapInfo can handle a variety of file formats including delimited ASCII, Lotus 1-2-3, dBase and Microsoft Excel.

I selected the column containing the street information from our dBase table. Selecting automatic geocoding from a dialog box sent MapInfo on its way, relating rows in the customer table to points on the San Francisco map. MapInfo generates a report telling you how many records could be geocoded. Those that can't be done automatically can be put in later manually.

After the dBase table was geocoded, I added this "layer" of data to the map. You can think of a layer of data as an overlay. MapInfo lets you start with the basic map layer and allows you to place other transparent layers on top. I did this with the geocoded dBase records to see where the concentrations of bank customers existed.

In this example, I was interested in finding the areas with the highest concentrations of customers to best locate a bank ATM. Using the tool palette radius search tool, I could get MapInfo to report the number of customers living within a circle of specified radius. Additionally, MapInfo created a Browser table of these records. I did several radius searches, creating several subsets of data to see where best to place the teller machine.

Creating graphs and charts is easy. Spreadsheet users will be instantly familiar with this if they've created graphs in a package such as Lotus. The usual graphs are available: line, area, x-y, bar and pie. The dialog-box driven interface is intuit-

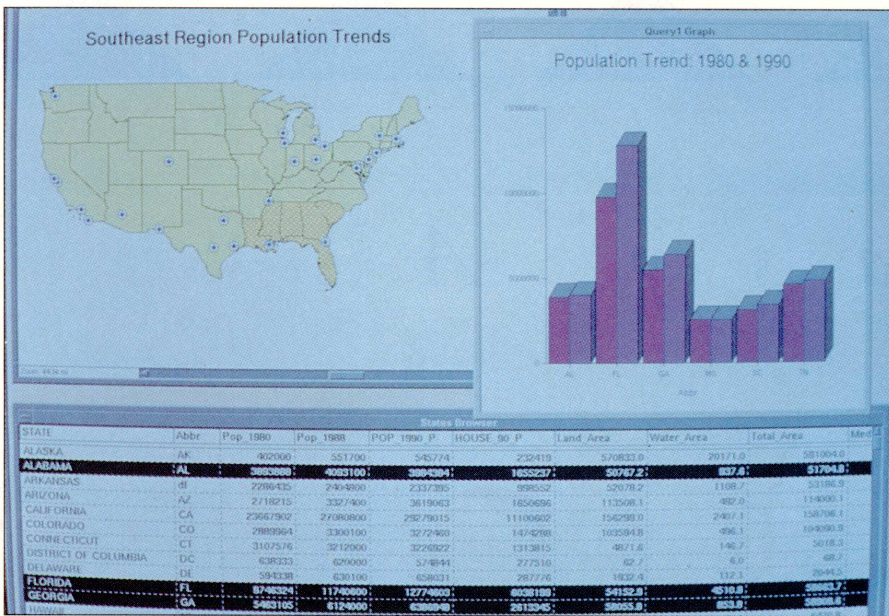


Figure 1: Standard charts can bring life to your information. They can be displayed simultaneously with a map and with the table containing the graphed data.

tive and straightforward. A sample graph is displayed in Figure 1.

The tutorial provides a nice overview of MapInfo's capabilities, but it only gives you an introduction. There's much more that an experienced user can do with the package.

Worthy Of Note

Here are some additional features and observations, in brief, not covered in the above discussion.

I wish I had a faster workstation (then again, who *doesn't*) to run MapInfo. I enjoyed using MapInfo, but it was a little overwhelming for my 360. There were times that I thought the machine crashed or hung when, in reality, it just needed to do a lot of thinking.

If you're a database and/or a spreadsheet user, two out of three MapInfo components (the Browser and the Grapher) will already look familiar to you. Browsing a table is very much like using a spreadsheet or the dBase Browse command. If you've used a spreadsheet graph feature, you'll quickly adapt to MapInfo's Grapher.

Other operations on table data will be familiar to you if you're a relational database user. For example, you can define

and modify a table's structure, create indexes, add and delete records, pack a table and query for information by creating your own search expressions.

In addition to accepting a variety of file formats for importing table data, MapInfo also can import graphics files in DXF format, such as those produced by AutoCAD. MapInfo's Interchange Format (MIF) provides a means of attaching descriptive information to data of various kinds — this facilitates porting MapInfo data to different systems.

MapInfo's components are all linked together. Called Hot Views, any changes you make or selections you make in one view will be reflected in other views on your workstation.

Any Postscript printer is supported by MapInfo. You can print just about any component you can see on your screen, whether it be the Browser's tables or the map itself. I printed table data and maps on a QMS PS2000 with excellent results.

Although the tutorial concentrated on geographic applications and the concept of "mapping" may indicate a certain emphasis in geographic applications, MapInfo can be used in other ways. For example, you could import an AutoCAD engineering drawing and use MapInfo to

add a wealth of information concerning the location and characteristics of parts. Another sample application sent with the package displays the booth locations of a trade show floor.

We've hardly scratched the surface with this brief introduction. After you've finished the tutorial, you'll want to start working with your own data. MapInfo can also provide you with a variety of maps depending on your application. For example, you can purchase maps that include detailed street and highway information, airports, railroads, retail activity, census information and much more.

Standard maps included with the package are a world map, state outlines and U.S. ZIP codes.

Documentation

MapInfo's documentation was excellent for beginners and experienced users alike. The tutorial has you up and running quickly. Appropriate explanations are given about what you're doing in the tutorial, but you don't get bogged down in details.

Before diving into the product, it might be useful to read the excellent introductory booklet. It provides explanations of all the concepts and definitions of mapping buzzwords.

Reading data is one thing. Seeing it come alive is another. If your business relies at all on geographic data, you owe it to yourself to check out MapInfo. Amerigo would be very pleased! ■

MapInfo

PLATFORMS: HP 9000 Series

PRICE: \$1,795 for first floating license, \$1,495 for follow-on licenses. Maps may also be purchased from MapInfo.

Mapping Information Systems Corp.

200 Broadway
Troy, New York 12180

(800)FAST-MAP (phone)
518-274-0510 (fax)
518-274-8673 (international phone)

CIRCLE 304 ON READER CARD

A s E a s y A s

Lotus 1-2-3 Version 1.1

For HP-UX

Workstations Turns

Calculations

Into Child's Play

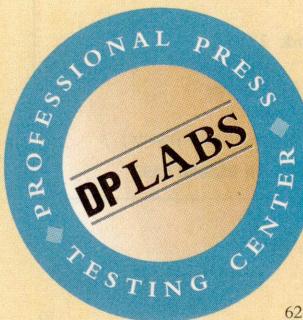
What can I say? It's been around for a long time, everyone knows at least a little bit about it, and it works. It really works well. What are we talking about? Lotus 1-2-3, of course. It's a name that in recent years has become almost synonymous with spreadsheets.

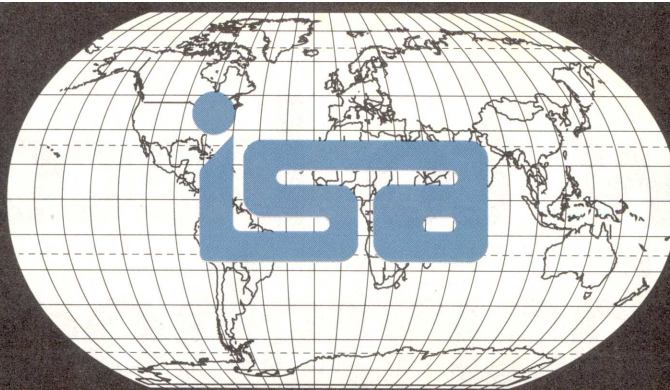
More than that, we're talking about Lotus 1-2-3 for Hewlett-Packard UNIX workstations. The version we worked with in our lab is a flavor of 1-2-3 Release 3 which has been specifically designed to run under a UNIX-based operating system in an X-window environment. All of the features which made 1-

2-3 the most popular spreadsheet package for PCs are available in this UNIX version.

The accountants and managers among you will feel right at home; menus, functions, formulas, and most function keys in 1-2-3 for UNIX are identical to those of the DOS version. Also, moving around a spreadsheet; tasks such as copying and deleting; and more esoteric features such as macros and graphics are all carried out as they always have been under 1-2-3. Be reassured, UNIX novices, you'll have no trouble adjusting to this version of your favorite spreadsheet application.

By Michele Petrovsky





RELIABLE / AFFORDABLE / PRACTICAL

ISA 5022 8mm



New 5 Giga Byte 8mm tape unit
with improved data transfer rate
and file searching capabilities.

ISA 5030 DAT



1.3 and 3-5 Giga Byte 4mm
tape drives with DDS and
compression format capabilities

All products manufactured by ISA are fully compatible with the HP Systems.
Supporting the HP 1000/3000/9000 with either HP-IB or SCSI interface.

MANUFACTURING WHAT OTHERS DREAM



Headquarters:

ISA CO., LTD. 1-1-5 Sekiguchi, Bunkyo-Ku, Tokyo 112 Japan
Tel: 81-3-5261-1160 Fax: 81-3-5261-1165

Asia / Oceania:

ISAHK CO., LTD. (Hong Kong) Tel: 852-3674877 Fax: 852-3696943
KINGDOM PTY LTD. (Taiwan) Tel: 886-2-5050525 Fax: 886-2-5031680
HOWCHING CORP. (Australia) Tel: 61-2-451-8131 Fax: 61-2-451-8131
PT. CITRATHIRZA ASTARIJAYA (Indonesia) Tel: 021-828-1687 Fax: 021-828-1686
INFONET ENGINEERING PTE LTD. (Singapore) Tel: 65-296-3377 Fax: 65-297-1194

U.S.A.

TEXAS ISA, INC. (Houston) Tel: 713-493-9925 Fax: 713-493-2724

Europe:

EURISA (France) Tel: 33-1-48-61-48-95 Fax: 33-1-48-61-49-06
COMPUTECHNIC AG (Switzerland) Tel: 41-71-42-64-64 Fax: 41-71-42-64-55
HCS GmbH (Germany) Tel: 49-40-550-10-75 Fax: 49-40-559-14-86
SEDASIS SA (France) Tel: 33-98-41-70-90 Fax: 33-98-41-66-33

* All tradenames and product numbers are the property of their respective companies.
CIRCLE 245 ON READER CARD

See us at ICMS Booth # 14

How to become a sharpshooter

Introducing Navigator Information Services, a whole new way to allow software and hardware companies to take aim at the hottest prospects for their products and services. Right from the desktops of their marketing departments.

Information that really hits home

Now you can capitalize on the first database service to bring you direct, online access to the highly prized subscriber information of four key industry publications from Professional Press. Including *DEC Professional*, *HP Professional*, *MIDRANGE Systems* and *LAN Computing*.

This should be the only way you buy mailing lists in the future. For a small investment, you can zero in on the best leads available. Using criteria that let you select prospects who are planning to purchase what you have to offer. Right now!

Do you have weak sales for your product in a particular region? Guide your sales efforts with sharply targeted prospect lists for mailings and telemarketing campaigns.

Take an extra 15 minutes and choose from a wealth of additional variables to fine-tune a product introduction.

Turn long shots into sure shots. If just one additional person buys your product or service, the use of our service already pays for itself.

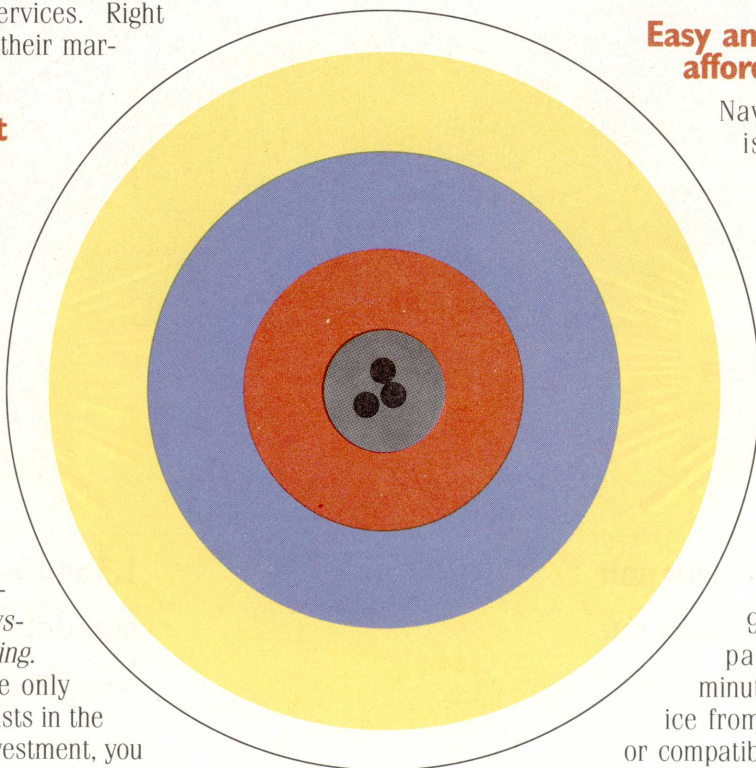
Easy and affordable to use

Navigator's new service is easy to use. User-friendly screens let you highlight your selected search criteria. The results appear instantaneously. Allowing you to further refine your subsequent selections.

Better yet, it's also exceedingly affordable. Access our service by calling 900-990-4228. You pay just \$1.50 per minute for 2400 baud service from any VT200/300/400 or compatible terminal. And as a value-added service, you can also order your mailing lists and telemarketing leads directly online.

Navigator Information Services. It will turn you into a marketing sharpshooter overnight.

To learn more about this or other online subscriber information available from Navigator Information Services, contact Jerry Meyers at 201-438-2400 (Ext. 201). **Call 900-990-4228 to take advantage of our straightforward and easy-to-use online data service today.**



Navigator INFORMATION SERVICES

A division of Datability, Inc.

One Palmer Terrace Carlstadt, NJ 07072

CIRCLE 476 ON READER CARD

Just as importantly, 1-2-3 for HP-UX provides file compatibility with other versions of 1-2-3. This means that worksheets, databases, and graphs that were created on IBM mainframes, IBM and IBM-compatible PCs, UNIX PCs, and DEC VAXs all can be manipulated on an HP workstation like the Apollo on which we carried out our tests.

At this point, you may be wondering if another variation of the 1-2-3 theme is no more than a case of "six of one, half a dozen of another." That's hardly true. Coupled with the memory and processing power of UNIX, 1-2-3 can open as many as 256 spreadsheets simultaneously, in a single file or in multiple files. In addition, as many as 26 worksheets can be viewed at one time in what's called "perspective mode."

When the windowing capabilities of

X on your workstation are brought into play, the possibilities for multiple sessions and for exchange of data between them expand even further. What's more, the combination of 1-2-3 with the virtual memory capabilities of UNIX allows the package to handle outsized spreadsheets and even databases with ease. Also, the HP-UX version of 1-2-3, and all UNIX versions of the package, can work with nearly every keyboard defined in /etc/termcap or /etc/terminfo. As might be expected, these versions of the application offer high-resolution bit-mapped graphics, but can still handle spreadsheets created on non-graphical terminals.

One other significant difference, this time a constraining one, exists between 1-2-3 on a single-user system like a DOS PC, and 1-2-3 in a multiuser, multitasking environment like UNIX. Because in the

FIGURE

```
clear
cd /
while :
do
echo "      WELCOME TO THE 1-2-3 PROFIT MODEL
MENU. PLEASE SELECT A SPREADSHEET
FROM THOSE LISTED BELOW.

1 - COSTS BY DEPARTMENT
2 - COSTS BY EXPENSE CATEGORY
3 - ORGANIZATION-WIDE COSTS
4 - GROSS PROFITS BY DEPARTMENT
5 - GROSS PROFITS ORGANIZATION-WIDE
6 - NET PROFITS BY DEPARTMENT
7 - NET PROFITS ORGANIZATION-WIDE
8 - LEAVE PROFIT MODEL MENU

PLEASE ENTER A DIGIT FROM 1 TO 8 ==> \c"

read digit
case $digit in
1)cd /extra/products/lotus/123.V11;
123 -w testsht.wk3;
continue;;
.
8)clear;
exit;;
*)clear;
echo "PLEASE RE-ENTER.";
clear;
continue;;

esac
done
```

A partial text of the menu shell script.

Memory Enhancements

For the maximum in system performance, Kingston's memory enhancements for **Hewlett-Packard** are second to none.

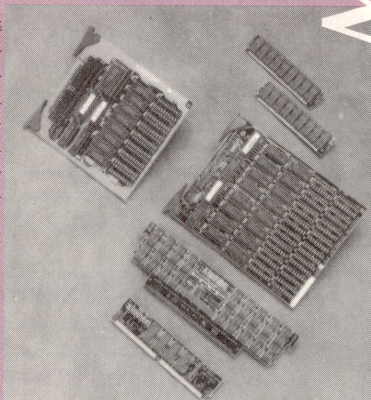
Our memory products include upgrades for the **HP Apollo 9000** workstations 300 and 400, and the **newly released 700 series**.

All Kingston memory enhancements are individually tested, fully warrantable, and 100% compatible.

For more information call Kingston today at:

1-800-835-2545
Ph. 714-435-2667
Fax 714-435-2699

Manufactured by
Kingston
TECHNOLOGY CORPORATION
17600 Newhope Street
Fountain Valley, CA 92708



All trademarks and registered trademarks are of their respective companies.

CIRCLE 281 ON READER CARD

latter, print queues take the place of direct user communication with a printer, 1-2-3 commands such as **/PRINT CANCEL**, **/PRINT RESUME**, and **/PRINT WAIT** just don't work. In a UNIX environment, **/PRINT GO** and **QUIT** are the whole bag of printer tricks. Also, the user must be careful to avoid print options (fonts, type sizes, and so on) which are specific to certain printers.

Installment And Configuration

Lotus 1-2-3 for Hewlett-Packard workstations requires an HP Apollo Series 300 or Series 400 workstation with a minimum of 8 MB of internal memory, a minimum HP-UX release of 7.0, and at least 9 MB free disk (17 if you'd like to run DataLens and the Add-In Toolkit). Installing 1-2-3 on our Apollo was very similar to, and as easy as, loading the application to a PC. All needed files were simply copied from the QIC tape which was the distribution medium. Then, the installation script, which had been

dumped into the `/tmp` directory, was run in order to perform such tasks as deciding whether to load add-ons, checking available disk space, selecting the destination directory for 1-2-3 files (for us, `/extra/lotus/products/lotus/123.V11`), and specifying login, system and company names. Then the utility `setup123` was run in order to supply the application with such information as the type of keyboard, printer and monitor we intended to use. The `setup123` utility automatically creates a configuration file called `.1123set`, which is stored in the `lotus` file subsystem.

Once these steps were taken we were ready to begin working with Lotus 1-2-3 on our Apollo.

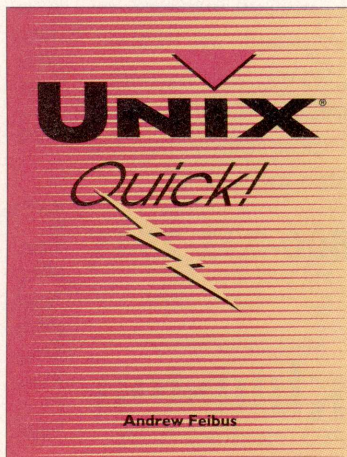
Tests

We conducted more than 24 tests of various aspects of 1-2-3 from our workstation. Beginning simply, we tried more than one way of starting the application. After opening a shell window, we en-

tered **123** and were immediately presented with an empty worksheet ready to be manipulated. As another alternative we tried **123 &** and, as expected, were informed that the package was running in background.

When working in foreground, we used several command line options at runtime, testing 1-2-3's ability to override its own configuration settings. **123 -n** started the application in foreground but non-interactively; no worksheet appeared in our active window. **123 -p 3** allowed the display of no more than three worksheets in perspective mode. And **123 -w /tmp/lotustmp/teststht.wk3** brought to the Apollo's screen a spreadsheet far removed in the filesystem from the `lotus` tree.

As we said early on, "testing" 1-2-3 is a bit like gilding a lily. There was never any doubt that the HP-UX version of the package would work as well as any other version. Nevertheless, test is what we did, for the sake of thoroughness if noth-



UNIX® — Quick! — for DOS Users

Here's the fastest, easiest way for DOS users to learn UNIX. Author Andy Feibus created a 3-step plan to get you started and keep you going — you'll be a UNIX pro in no time!

From "Getting Acquainted with UNIX" to "UNIX, Quicker!," each section demonstrates how to use the commands and features you need most. Plus, practice exercises and chapter reviews let you assess how much — and how well — you've learned.

If you need to learn UNIX and don't want to waste time doing it, *UNIX, Quick!* was written just for you.

To order your copy, use the form below. Or place your order by phone (215) 957-4265 or FAX (215) 957-1050. But do it now . . . the sooner you send for it, the sooner you'll be up and running. Learn UNIX, Quick!

UNIX is a registered trademark of UNIX System Laboratories, Inc.

UNIX, Quick! Order Form



Name _____ Title _____
 Company _____
 Address _____
 City/State/Zip _____
 Country _____
 Phone () _____ FAX () _____
 Street address required.
☐ Check enclosed \$ _____
 Charge to: ☐ VISA ☐ MasterCard ☐ American Express
 Account No. _____ Exp. Date _____
 Signature _____ Date _____

Qty.	Subtotal
1-5 copies @ \$30	
5-15 copies @ \$25.50	
16-49 copies @ \$21	
50+ copies @ \$18	
PA residents add 6% sales tax	
UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information	
TOTAL ORDER	

HPHH0392

Clip and mail with payment to: Professional Press Books, 101 Witmer Rd., P.O. Box 446, Horsham, Pennsylvania 19044

ing else. Every item on the Worksheet menu bar was put through its paces, and each one functioned just as smoothly as if we were working at the little PC/xt on which we'd learned the package. For example, we reset column widths by means of `/WORKSHEET/COLUMN/SET-WIDTH` and via `/WORKSHEET/GLOBAL/COL-WIDTH`. We copied and moved individual cells and ranges of cells. We changed display formats for the entire worksheet and for sections of it. We created our own formulas. In one, we summed a row with `+A13+B13+C13+D13`. A number of 1-2-3's built-in functions were used too, and performed as expected. Among these were ABS (absolute value), SUM, COUNT (which returns the number of non-blank cells), SIN (sine), COS (cosine), and EXACT (which returned an exit value of 1 for two strings which were exactly alike).

Other, more workstation-related tricks were tried. By using the command `/WORKSHEET/WINDOW/HORIZONTAL`, 1-2-3's display was split horizontally, beginning at the location of the cell pointer. `/WORKSHEET/WINDOW/CLEAR` returned the display to its original condition. In another windows-oriented test, we moved, sized, and maximized each of the three windows containing a 1-2-3 session. More impressively, we copied data from an active worksheet in one window to vi running in another window, edited the data, and copied the modified information into the worksheet from which it had come.

Bells And Whistles

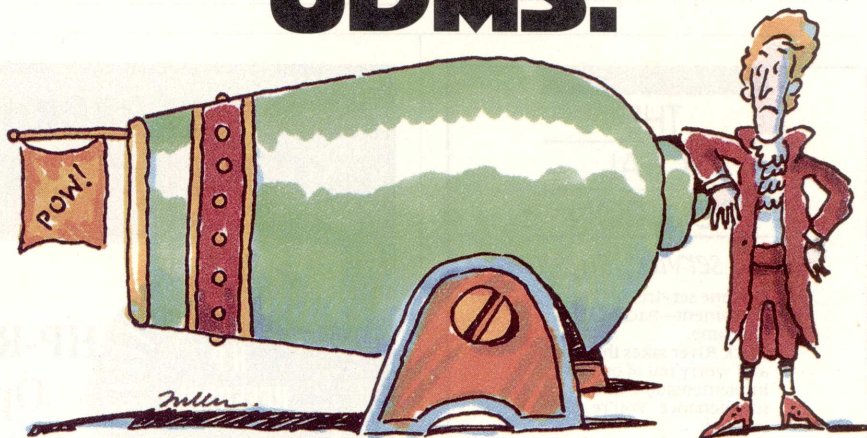
Having satisfied ourselves that even a UNIX neophyte would feel immediately comfortable with 1-2-3 for HP-UX, we decided to indulge in a bit of play with some of the bells and whistles which UNIX provides the application.

In an effort to simulate a real-world situation, we set out to create a user interface to 1-2-3 which would allow easy access to specific worksheets. Using vi, we created a simple menu, saving it to the file `menufil` in the `usr/bin` file system, rather than to the lotus subsystem. With `chmod`, we "755ed" the menu file,

so that all users could look at or execute it, but only root, the owner, could modify it in any way. Then we placed the script file in all users' operating paths by using the commands `PATH=$PATH:/usr/bin` and `export PATH`. Figure 1 contains a partial text of the menu shellscript.

Unfortunately, the HP Apollo on which we'd loaded 1-2-3 and on which we'd planned to run this shellscript was down for service by the time we were able to start the test. Carrying on, we copied the script to another HP-UX machine on our in-lab network, and ran it there. Upon entering "menufil" at the

THIS IS YOUR HP[®] COMPUTER WITHOUT UDMS.



Your HP hardware has plenty of firepower, don't waste it on a wimpy report writing program. UDMS offers lots of flexibility, power and connectivity to the full spectrum of users. Call us right now for a no obligation demonstration, and let us show you how UDMS can solve your data management needs.

Heavyweight Report Writing, Plain and Simple.

1-800-944-8367

INTERACTIVE SOFTWARE

UDMS is a trademark of Interactive Software Systems Inc. (303) 987-1001

CIRCLE 214 ON READER CARD

command line while in the / directory, we received the error message "/extra/products/lotus/123.V11/testsh.t.wk3: bad directory". But this message was itself reassuring; UNIX had run our menu script, and only the unavailability of the lotus file subsystem on the machine to which we'd moved prevented 1-2-3 from starting with the indicated worksheet in the active window. Error message notwithstanding, a user-friendly HP-UX interface to 1-2-3 had been created.

Summing Up

Lotus Corp. provides a comprehensive set of documentation with Version 1.1 of 1-2-3 for UNIX. This collection includes a Platform Guide which gives detailed information on working with spreadsheets and graphs in an X-window environment; a User's Guide which not only reiterates windowing techniques but also provides a thorough hands-on introduction to 1-2-3 itself; a Reference Guide which we found to be particularly help-

ful on macro questions; and an Installation and Configuration Guide which makes clear the seemingly subtle distinctions which can make or break a successful load of 1-2-3. Even users who are unfamiliar with spreadsheet applications could, by relying on this documentation group, make their way through the application with few problems.

1-2-3 for UNIX has capacities beyond

and even more impressive than those already discussed. Particularly relevant in an open systems environment are its desktop integration and workgroup computing capabilities. Desktop integration can be accomplished by something as simple as using a file manager's icons to start 1-2-3, or by the more elaborate process of including 1-2-3's worksheets and graphs in a document produced by a desktop publisher. Workgroup computing with 1-2-3 draws on features like file reservation (precluding multiple access to worksheets stored in a shared directory) and add-in compatibility (by means of which user-written C language tweaks to 1-2-3 can be developed on any machine in the group, and run on any other, assuming a common C library).

Lotus 1-2-3 obviously is a proven product. 1-2-3 Version 1.1 for UNIX has made the transition to the HP-UX environment effortlessly. It may be the ideal "business partner" for your workstation.

Lotus 1-2-3 For HP-UX

PLATFORMS: HP Apollo 9000 Series 300 and 400 workstations running 7.0 or higher. (Also available for Series 700 & 800 systems)

PRICE: \$695.00

Lotus Development Corp.

Lotus Development Corp.
55 Cambridge Parkway
Cambridge, MA 02142
(617) 577-8500

CIRCLE 303 ON READER CARD

THE TOTAL SOLUTION

sales, service, support

On-time service, on-line equipment—backed by the GE name.

Black River takes the risk and worry out of ordering, implementation and maintenance. You're assured:

- Full line of new and previously owned, refurbished 9000, 3000 and 1000.
- Technically trained maintenance team.
- Free installation with GE maintenance package.
- Nationwide service backed by GE.

Call 216-365-9950 or fax 216-365-3916 for more information.



GE Computer Service

BLACK RIVER
COMPUTERS
THE TOTAL SOLUTION
sales, service, support

143 YORKSHIRE • ELYRIA, OHIO 44035
216-365-9950

CIRCLE 171 ON READER CARD

NETWORK BACKUP, DATA COMPRESSION, OPTICAL SUPPORT and MORE . . .

HP-REFERRED Optical Solutions

Hewlett-Packard is honored to include this application in the HP-REFERRED Optical Solutions Program

HI-COMP
HI-BARS
HI-BACK
HP-REFERRED

WHAT MORE CAN WE SAY?

For additional information or FREE demo, call, Fax or write:

H · I · C · M · P
AMERICA, INC.

Hi-Comp America, Inc.
419 Canyon Avenue, Suite 215
Ft. Collins, CO 80521-2670
Phone: 1-800-323-8863
Fax: (303) 224-9702

CIRCLE 120 ON READER CARD

STILL READING BETWEEN THE LINES?

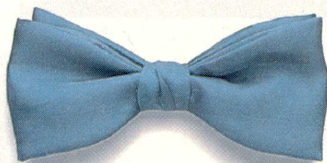


FANTASIA MAKES IT CLEAR.

Why accept reports that are hard to read and waste space on your desk? FANTASIA provides clean, crisp, cut-sheet management reports every time.

FANTASIA is an integrated solution for printing typeset quality reports, forms and graphics on HP LaserJet printers.

Enhance those dreary accounting reports to communicate real information by using a mix of fonts and graphic arts effects. Clean up your catalogs



and price lists by printing them straight off with FANTASIA. All this integrates easily with any report writer or programming language you care to use.

FANTASIA also enables you to throw away all your preprinted paper

stocks and use a lower cost, more flexible solution. Use FANTASIA to design forms on its powerful PC-based form design tool and print them on your HP3000 or HP-UX systems.

FANTASIA does it all. It's the ideal solution to all your laser printing needs, on LaserJet IIIs through to HP5000 printers (there's an easy upgrade path for HP2680 users too). Why delay - call now for more information.

PROACTIVE SYSTEMS INC
4 MAIN STREET
LOS ALTOS
CALIFORNIA 94022
TEL: 415-949-9100
FAX: 415-949-9111

PROACTIVE SYSTEMS
1411 SOUTH WOODWARD #201
BLOOMFIELD HILLS
MICHIGAN 48302
TEL: 313-333-7200
FAX: 313-333-7681

PROACTIVE SYSTEMS LTD
CENTRAL COURT
KNOLL RISE, ORPINGTON
KENT BR6 0JA, ENGLAND
TEL: 0689-877933.
FAX: 0689-891475

PROACTIVE SYSTEMS
POSTFACH 250106
8700 WURZBURG
WEST GERMANY
TEL: 0931-275285
FAX: 0931-271273

PROACTIVE SYSTEMS S.A.
4 SQUARE LEON BLUM
92800 PUTEAUX
FRANCE
TEL: (1).49.01.05.00
FAX: (1).49.01.90.20

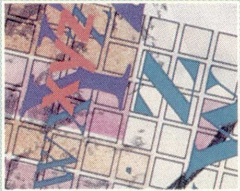
See us at ICMS Booth # 34

CIRCLE 485 ON READER CARD

FANTASIA is a trademark of Proactive Systems. LASERJET is a trademark of Hewlett-Packard.



PROACTIVE
SYSTEMS



OBJECTIVELY SPEAKING

Richard Riehle

pendently of object-oriented methods. Similarly, this idea can be extended to the definition of software classes and objects.

Software object is not another expression for program module. However, many software professionals have difficulty discerning the difference between simple modularity and designing with software objects. Think of a software object as an abstraction that specifies behavior, attributes and possible states of the object, and hides/encapsulates information about how states are changed. The interface specification is visible to the user of the object, while the behavior is not.

For example, my television set is an object. It has attributes, states and behavior. I never look inside at the underlying electronics, but I do have a set of operations available to control both its behavior and state. With my remote con-

All software abstractions should be considered inde-

Many software professionals have difficulty discerning the difference between simple modularity and designing with software objects.

trol I can easily interface with all of the behavior important to me while sitting on a couch and munching popcorn.

Some early definitions of software objects emphasized the object-oriented programming process. This level of abstraction emphasizes implementation rather than design. Such programming definitions focus on language mechanisms such

as inheritance, polymorphism and dynamic binding. When considered at the programming level, these mechanisms are certainly important. At the analysis and design level, software objects tend to be viewed at a somewhat higher level of abstraction. Keep in mind, also, that an object will be designed as a "class." Actual objects will be derived from the class.

State Declaration

An important characteristic of a software object is its "state" i.e., an object can be characterized by its different states. If you were to design a software class, `fifo_queue`, two of the states associated with objects of that class would be "full" and "empty." Other states would represent how full, or how many components are in the queue. A graphic object, such as a box drawn on a screen, might have states such as filled or not filled (with a pattern).

One problem in designing classes for software objects is identifying the states of that object. This is even more problematic because objects can have both states and attributes, and it may be difficult to decide which is which. An object can change its own states. It cannot change its own attributes.

One key to determining state is acknowledging the notion of change of state. This is essential to understanding software objects. It can be summarized this way: An object has state(s) and associated behavior to change and inspect the state. The behavior is actually part of the object. We can place the behavior into two broad categories: (1) operations to alter state, and (2) operations to select and return information about state.

Suppose class `fifo_queue` represents a table of integer components. The implementation schema for `fifo_queue` is not visible to the user of an object. We, the

T A B L E

```
Class : fifo_queue; // a first in first out queue

private
queue : // some definition of the queue

public
integer Value // components are type integer

operation Insert (Value, Queue)
operation Retrieve (Value, Queue)
operation Clear (Value, Queue)
operation Copy (Queue, Queue)
operation Is_Empty (Queue) : Boolean

end class;
```


We Don't Predict the Future.

We Just Give You the Right Financial Management Tools to Prepare for It.

Successful survival in a world of unknowns requires architecture with endurance.

At Mitchell Humphrey & Co., we approach product development with precisely this attitude. Our comprehensive family of financial management solutions are painstakingly designed and smoothly integrated to ensure the longevity of your investment.

You see, it's our belief that your "long-term" investment in financial software shouldn't be history after a year or two. Which is why we won't sacrifice quality and consistency in order to merely rush our products "out the door."

After all, anyone can use third party software to hastily patch cosmetic "features" onto a mediocre accounting system. But what will a patchwork system cost you in terms of reliability and support down the road?

On the other hand, foresight, planning and careful engineering take time. But we wouldn't have it any other way. And after living with our software for a while, we think you'll agree that our time (and your money) have been well spent.

So, if you're in the process of evaluating financial software, why not consider a high-yield investment for the future: Financial Management Systems from Mitchell Humphrey & Co.

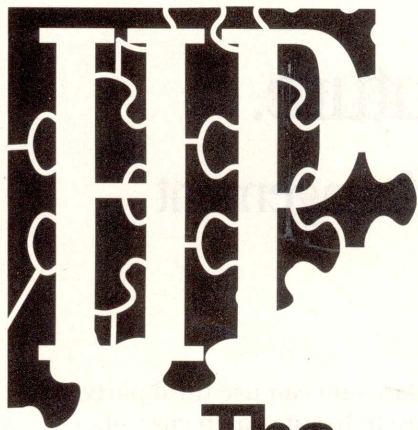


MITCHELL HUMPHREY & Co.

Exceptional Software for Exceptional Organizations

800-237-0028

CIRCLE 154 ON READER CARD



The Solution to the HPuzzle

With HP systems and peripherals, HP compatible equipment and accessories at competitive prices, why call anywhere else? HP3000, 1000 & 9000, along with the experience, the reputation, and the service you deserve whether you're **buying, selling, or trading HP equipment call —**
800-882-0201

U.S.A. Only



COLA Member:
Computer Dealers
& Lessors Association

11421 NE 120th Street, Kirkland, Washington 98034
206/ 820-6500 FAX: 206/ 820-6565
HP is a registered trademark.

CIRCLE 101 ON READER CARD

users of `fifo_queue`, have no access to the underlying structure. Is it a linked-list, a bounded array or what? The behavior that changes the state of the queue consists of a set of operations such as insert, remove, display, retrieve and clear. These operations change and inspect the state of the queue and are designed into the object. Such operations do affect the state of the `fifo_queue` but do not affect the state of the components.

The operations are an integral part of the queue object. In fact, if the queue object is designed correctly, no other operations will be permitted on the queue except those that have been defined for `fifo_queue`. Also, the components, themselves, might be defined as objects, with all of the characteristics we have defined for any other kind of object.

Table 1 is an abstract example of a `fifo_queue` class in a high-level pseudo-language.

This class is specific to a queue of integer components. In some development environments the designer could make the class independent of any predetermined component type. Also, the actual definition of the queue is hidden in a private part of the class definition. Anything in the private part of the class is not directly accessible to any user of that class. The only operations permitted on a

queue are those specified in the public part of the class definition.

Operation Menu

There are five operations permitted on objects of class `fifo_queue`. Four of these modify the state of queue, and the third inspects the state of the queue and returns a result of type boolean. A well defined class always will have some inspection operations that provide information regarding object state.

With any luck, our pseudo-language is so simple that you won't have trouble following it. C++ programmers will find the pseudo-language somewhat familiar. Even Ada programmers should be able to read this code. The point is not the code, but the idea of an object. This class encapsulates a potential object of `fifo_queue` that has both state and operations to alter and inspect state.

Notice that there is no implementing code for the operations on this object. At this level we are dealing with the specification for the class. The focus is on design of an object class, not on the underlying algorithms. The implementing code can be developed later. The designer is first concerned with creating an abstraction that represents a well-defined, fully encapsulated, software object.

In a later discussion of inheritance, we

T A B L E

2

```
main :: import fifo_queue // make fifo_queue visible to this program
```

```
fifo_queue.queue Q1, Q2 // two objects of fifo_queue.queue  
integer The_Value // the component type and variable name
```

```
begin
```

```
fifo_queue.clear(Q1) // set Q1 object to empty; note dot qualifier  
loop
```

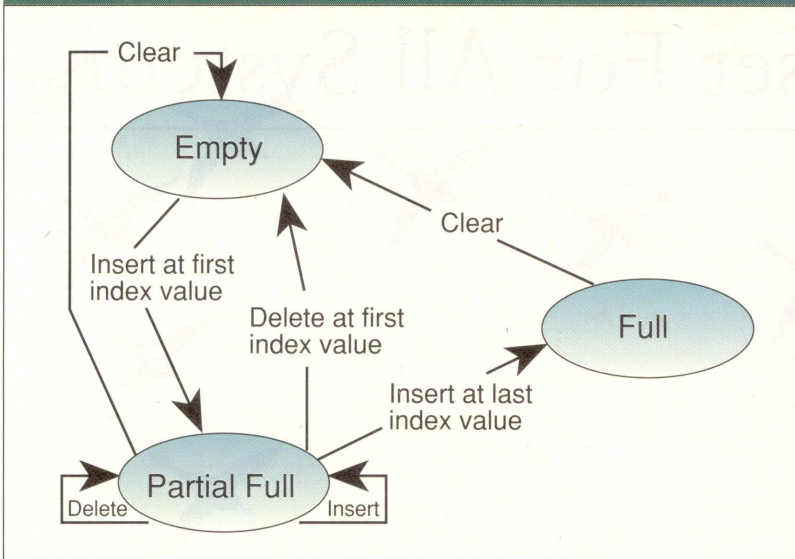
```
// some operation to get The_Value  
fifo_queue.insert(The_Value, Q1)
```

```
end loop
```

```
if not fifo_queue.is_empty(Q1)  
    fifo_queue.copy(Q1, Q2)  
end if
```

```
end main
```


FIGURE



will demonstrate how a design can be constructed from other existing classes. At this point we keep the design to a more simplified example.

To use class `fifo_queue`, the programmer could create code like that shown in Table 2.

One object is assigned to another via the "copy" operation. There is no infix assignment operator defined for objects of class `Queue`. If your environment has overloading capability, you might have defined the specification for the Copy operation as:

```
operation ":" (Queue) : Queue
```

And implemented it in the `main()` as:

```
if not fifo_queue.is_empty
  Q2 := Q1
end if
```

Again, because this is a pseudo-language syntax, we are free to assume that overloading is available.

The objects `Q1` and `Q2`, derived from the class, `fifo_queue`, are protected from any other operations. In this example an object is the combination of an object name and a set of behaviors (operations). The behavior of the object is as much a part of the object as the object name. The data structure, `fifo_queue`, is implemented as a class, and each object derived

from this class is an instance of a complete entity.

One important thing we can do with objects is model their behavior with State Transition Diagrams (STD). An STD, sometimes called a Mealy Diagram, is a visual representation of the available states and possible transitions for an object.

For `fifo_queue`, an STD might look like that found in Figure 1.

An STD is a good technique to determine whether you're really designing a software object. If you can represent the object with a discrete set state changes you probably have an object. Frequently, an object can be further decomposed into other objects. — *Richard Riehle is president of AdaWorks in Palo Alto, CA.*

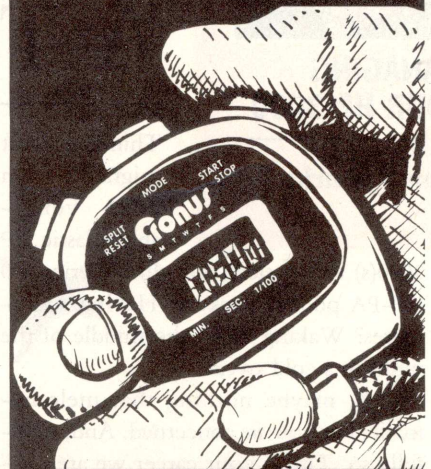
Would you like to continue to see articles on this topic?
Circle on reader card
yes 348 no 347

There are two new books on object-oriented design you may find useful.

- *Object Lifecycles, Modeling the World in States*, by Sally Shlaer and Stephen Mellor, published by Yourdon Press.

- *Object-Oriented Modeling and Design*, by James Rumbaugh, Michael Blaha, William Premerlani, Frederick Eddy, and William Lorensen, published by Prentice-Hall.

FREE STOPWATCH



**PROVES SHEETMATE™
ACCELERATES
CONVERSIONS TO
PC FORMATS**

**Ask for a demonstration
and we'll give you a sports
stopwatch absolutely FREE.**

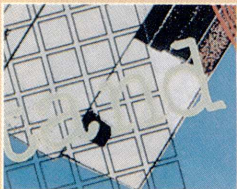
Experience the speed and power of SHEETMATE! It's the one-step bridge between HP 3000 information and your PC. With a single command, you can translate any report into spreadsheets, dBase, Lotus, Excel, Quattro, Paradox, WordPerfect, and other PC formats.

Time our FREE 15 minute "walk-through" and the sports stopwatch is yours. Mail the coupon at the bottom of this ad today. For immediate response call 1-800-445-5279 or fax us at 908-974-0167.

Name		
Title/Function		
Company		
Address		
City	State	Zip
Phone	FAX	
<input type="checkbox"/> Also send literature on Hillary Software's FAXLink/3000 which can transmit faxes worldwide instantly without using a fax machine.		
Hillary Software, Inc.		
Hillary Software, Inc. 309 Morris Avenue Spring Lake, NJ 07762 USA 908-974-8484 FAX: 908-974-0167 1-800-445-5279		

392HP

CIRCLE 486 ON READER CARD



MANAGING YOUR HP 3000

John P. Burke

3000(s) to the sleek and shiny Series 900 HP-PA pocket rockets? Having nightmares? Waking up in the middle of the night in a cold sweat?

OK, maybe nothing that melodramatic; but you *are* concerned. And, rightfully so. This *is* your career we are talking about. And many a career has been derailed over a botched conversion.

What Are You Getting Into?

First, note HP's choice of words in describing the upgrade to HP-PA. Hewlett-Packard has carefully avoided using the dreaded "c" word (conversion) since the introduction of the Series 900 machines. OK, I understand. After all, the word "conversion" is saddled with all sorts of ugly baggage.

But *migration*?

You're probably comfortable with the notion that birds, animals and even humans migrate from one locale to another. But now, in what should be an award-winning example of techno-babble, we have programs and applications "migrating" from one system to another. Of course, the intention in appropriating the word "migrate" is to convey a sense of ease. After all, you're just moving your systems from one machine to another "compatible" one!

"Compatible" is another interesting choice of words. Why not emulate? "Emulate" means "to imitate" or "to equal or approach equality with," while "compatible" is defined as "capable of existing together in harmony."

What "compatible" really means to you is that you *may not* be able to just STORE your MPE/V-based systems to tape and then RESTORE them to a se-

Thinking about migrating from your venerable Classic HP

ries 900 machine and expect everything to work without flaw.

Somewhere between the marketing hyperbole of the painless migration and the (perhaps apocryphal) tales of conversion woe, lies the truth. To be sure, you aren't looking at an IBM System/36 to AS/400 or DOS/VS to MVS horror story. You are, however, looking at something much more fraught with potential dangers than a Series 58 to Series 70 box swap or even MPE/IV to MPE/V upgrade. And what the heck is an MPE/iX anyway?

What can you do (preferably inexpensively and with a minimal time commitment), to assess your level of exposure and the potential manpower requirements of a migration?

What's It All About?

The Migration Toolset (HP32428A, \$100) contains three tools for use in evaluating migration issues. All run on MPE/V machines:

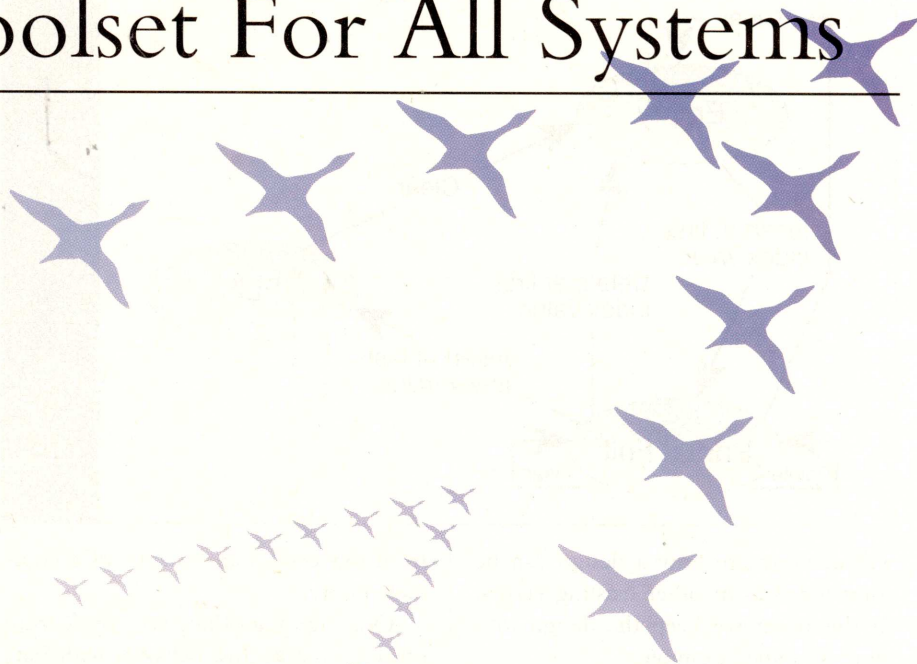
- OCA — Object Code Analyzer.
- RTM — Run Time Monitor.
- MPT — Migration Planning Tool.

When the complete product arrives (assuming you can figure out how to order it, the product arrives while you still have use for it, and it is the correct version for your system...), it will consist of the Migration Process Guide and a system update tape. And you thought you were going to get away easy.

Do *not* immediately proceed to update your system before reading the Migration Process Guide. If you hope to use the RTM tool and want to get the most out of MPT, you'll probably have to change your system logging configuration. Logging must be *on* and Program Event Logging (type 16) must be enabled.

The Migration Process Guide steers you through the entire migration process, not just the use of OCA, RTM and MPT. It covers setting up a migration plan, when and how to use compatibility mode (CM), when and what to convert to native mode (NM), and when a combination of CM and NM using switch stubs might be appropriate. It also addresses data format and alignment issues. The Guide contains an excellent section

A Toolset For All Systems



There must be something better than the patch panel to switch users between systems...

I know but we can't afford it

We need more ports so all our terminals and PCs can access the host computer...

Can't afford it...

When the system goes down, we need a switch to move users to the back-up, without re-cabling...

Can't afford it...

Any hacker can dial in to our system. Can't we do something about security?

Can't afford it...

We need a LAN to share laser printers and high speed modems...

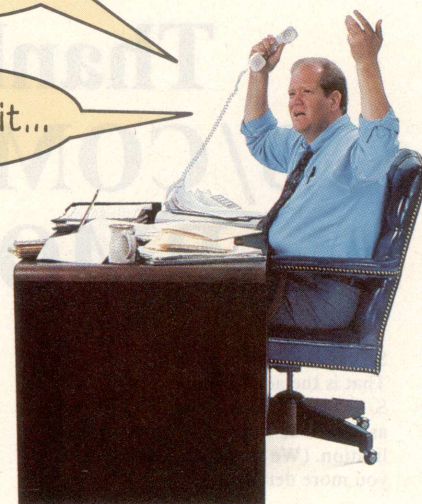
Can't afford it...

We need more Ethernet terminal servers...

Can't afford it...

ASK US
HOW TO
**SAVE ON
HP DTC
CONNECTIONS**

Now, the proven multi-purpose async connectivity solution you can afford



With Equinox, you **can** afford to network all your asynchronous terminals and PCs to your host computers — even when times are tough. Switch

between hosts from your keyboard. Establish multiple sessions with a few keystrokes. Share ports among part-time users. Let users access printers and share modems.

Even transfer files among PCs without installing a LAN.

Twisted-pair cabling keeps installation costs low and eases people and equipment moves. T1, Ethernet, RS-232, RS-423 and current loop interface options simplify connections in multi-vendor environments, cross-campus or cross-country. Built-in fault tolerance keeps you operational,

and the system is supported by a full three year warranty.

Whether you have fewer than 100 or thousands of users, Equinox has a Data PBX sized to fit your needs. And at about \$100 per port, it's the networking solution you can afford! Call today for details of our 30-day free trial.

EQUINOX

Equinox Systems, Inc.
14260 S.W. 119 Avenue
Miami, FL 33186

800/275-3500

305/255-3500 • FAX 305/253-0003

All names, products and services are the property of their respective organizations.



CIRCLE 115 ON READER CARD

on incompatibilities between MPE/V and MPE/XL (now MPE/iX).

The Object Code Analyzer

The Object Code Analyzer (OCA) operates on SL and program files. It reports on both definite and potential problems.

OCA can be run against a single file, your entire system, or anything in between. You use indirect files and MPE fileset specifications to limit the scope of the analysis. You also may specify your own list of incompatible procedures which OCA will add to its internal list and check

against the programs or SLs being scanned.

OCA produces two types of reports: a brief version which is the recommended first step and a detailed version which typically would be run only against PROG and SL files already identified as presenting serious migration concerns. In either case, the program runs swiftly.

The brief version primarily lists names of externally referenced procedures that have been identified as presenting possible incompatibilities (CM, CM/NM or just NM). For example, some FCONTROL control codes are incompatible on MPE/iX. OCA (brief) tells you if FCONTROL is referenced. This may be enough to determine if you have a problem.

If the detailed report is specified, OCA reads every record of the file and determines the location (segment number and offset) of all procedure calls to potentially incompatible procedures. The detailed report also produces a useful general description of a program's structure.

The Run Time Monitor

The Run Time Monitor (RTM) monitors executing programs for occurrences of specific predefined events. The tool consists of three parts:

- RTM.PUB.SYS, a program used to enable and disable run time monitoring and specify the event classes to monitor.
- RTMREP.PUB.SYS, a program which generates reports from the program event log records in the system log files.
- RTMSL.PUB.SYS, an SL used by the system LOADER (when RTM is enabled) at program load time, which intercepts certain system calls, generating Program Event log records.

System logging and program file event logging (log type 16) must be enabled and this is usually accomplished through the MPE/V SYSDUMP facility. Installing the Migration Toolset requires an UPDATE, so with proper planning, you should be able to correctly set up logging criteria at the same time.

RTM uses some extra stack space and therefore could cause problems with very

"We Saved 53 Days On A 61 Day Project Thanks To S/COMPARE- HARMONIZER™"

Sound Unbelievable?

That is the actual experience of an S/COMPARE-HARMONIZER user as described in a leading industry publication. (We would be happy to give you more details.)

ALDON Computer Group's S/COMPARE-HARMONIZER is an easy-to-use software integration system that simplifies the process of applying custom changes to new releases of packaged software.

S/COMPARE-HARMONIZER users say it can save you 70% to 80% of the time your programmers have to spend on the tedious task of identifying custom changes and integrating them into new releases.

S/COMPARE-HARMONIZER is also advocated by programmers and auditors for the purpose of ensuring adequate change control. It provides you with a simple method to create documentation of all changes you make to source code.

ALDON Computer Group is an industry leader in producing software quality assurance and change management tools. The firm was founded in Oakland, California in 1980. Today, ALDON products are in use worldwide at over 1200 sites.

See For Yourself.

S/COMPARE-HARMONIZER can be as valuable to you as it has proven to be to so many other HP3000 MPE and MPE XL users. Call us today for your free trial and then start planning what you will do with all the time you save.

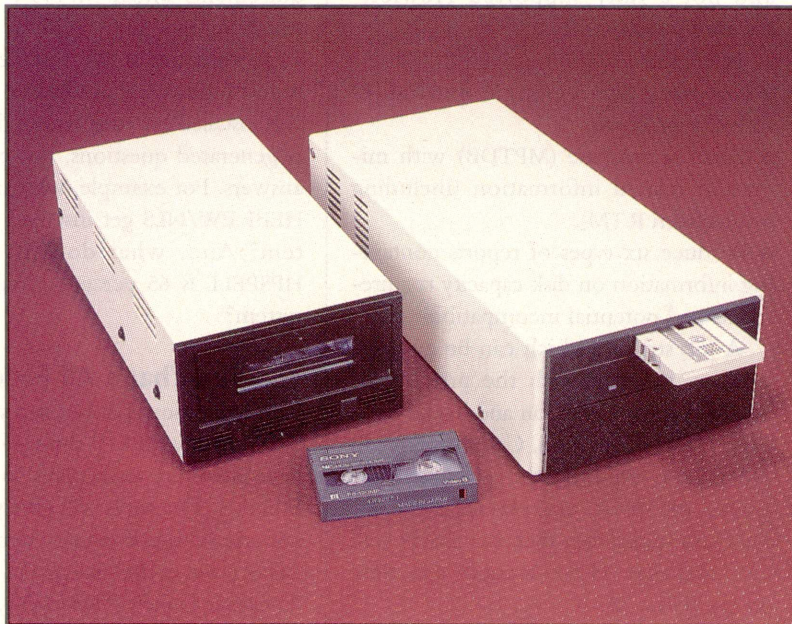


401 15th Street
Oakland, CA 94612
(800) 825-5858
(415) 839-3535
FAX (415) 839-2894



CIRCLE 163 ON READER CARD

Why not the best?



**HP 1000,
HP 3000, &
HP 9000
150 Megabyte
& 2 Gigabyte
Streaming Tapes**
Unattended backup
of all your data on a
single ultra-compact
cartridge.
Media translation &
SSS update service
available

Also available:

HP 1000 Memory Expansion

Improves system performance. Free evaluation.
512 KB to 32 MB expandable cards. 2 year warranty

High Performance SCSI Interfaces for HP 1000, HP 3000, & HP 9000

Superior to IEEE-488. Used with all Herstal
Automation peripherals

HP 1000 & HP 9000 Disc Drives

65 MB to 638 MB. 30,000 hour MTBF.
Up to 7 drives per interface



HP 1000 & HP 9000 Optical Discs

1 Gigabyte Erasable and "Write Once". Ideal for
information retrieval and archival data storage

Ramdisc/1000 Speeds up file access

Superclock/1000 Automatic time & date

*"I promise you —
no service hassles, no
matter who is servicing
your HP system."*

Rick Walsh
President



HERSTAL

AUTOMATION LTD.

3171 West Twelve Mile Road
Berkley, Michigan, USA 48072

Telex 650-321-1560

FAX 313-548-2010

Phone 313-548-2001

large programs. The manual proposes several work-arounds in the unlikely event that RTM causes a program abort.

A more likely problem will be consumption of disk space. When using RTM, you'll need to closely monitor disk space usage by the system log files.

The RTMREP program produces two types of reports:

- A summary report that shows all events generated by each program — a counter shows the number of times that a particular segment/offset caused the event.
- A detailed report that shows all events logged (and uses up several trees worth of paper in the process).

The Migration Planning Tool

The Migration Planning Tool (MPT) is really a whole suite of tools that aid in the migration planning process. To get the most out of MPT, you should use RTM first to generate an activity record in the system log files.

Curiously, MPT is a TELESUP utility and not a fully supported Hewlett-Packard product.

MPT will:

- Generate a report listing all installed HP software products.
- Create a database (MPTDB) with migration related information (including results from RTM).
- Produce six types of reports containing information on disk capacity requirements and potential incompatibilities.

A job stream (which can be customized) is included with the product. It handles database creation and loading and basic report generation. Caution: this job can take a *very* long time (six to eight hours or even more!) to process. MPTJOB took more than five hours wall time and over 11,000 seconds cpu time on my Series 58.

MPT examines not only programs and SLs, but also, job files, UDCs and RTM events for potential problems. It also

gives a detailed estimate of disk space requirements under MPE/iX (CM, OCT and NM).

A curiosity is the installed products report (and you thought you knew what was installed on your system didn't you?). It generated questions, but provided no answers. For example, why and how did HEBREW/NLS get installed on my system? And, what does it mean that HPSPELL is 65 percent installed on my system?

Tha-Tha-That's All Folks

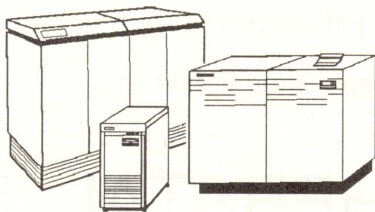
The Migration Toolset is a valuable addition to any MPE/V shop — even if you have no short term plans to migrate to MPE/iX. The tools will give you a better understanding of your system. —*John P. Burke is the system manager for Construction Computer Center, Philadelphia, PA.*

Would you like to continue to see articles on this topic?
Circle on reader card
yes 350 no 349

DISASTER RECOVERY SERVICES

*An Ounce of Prevention
Is Worth a Pound of Care.*

Find out how you can insure the continual operation of your HP data center, before it's too late.



Computer Solutions, Inc.
(201) 672-6000

CIRCLE 167 ON READER CARD

The Right One for a Repeat Performance



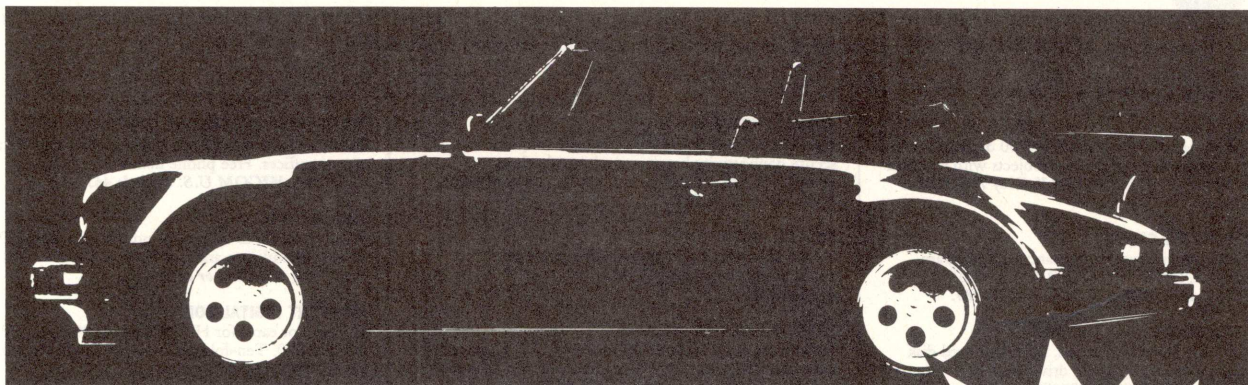
Reprints of articles
available from

Reprint Management Services

505 East Airport Road • P.O. Box 5363
Lancaster, PA 17601

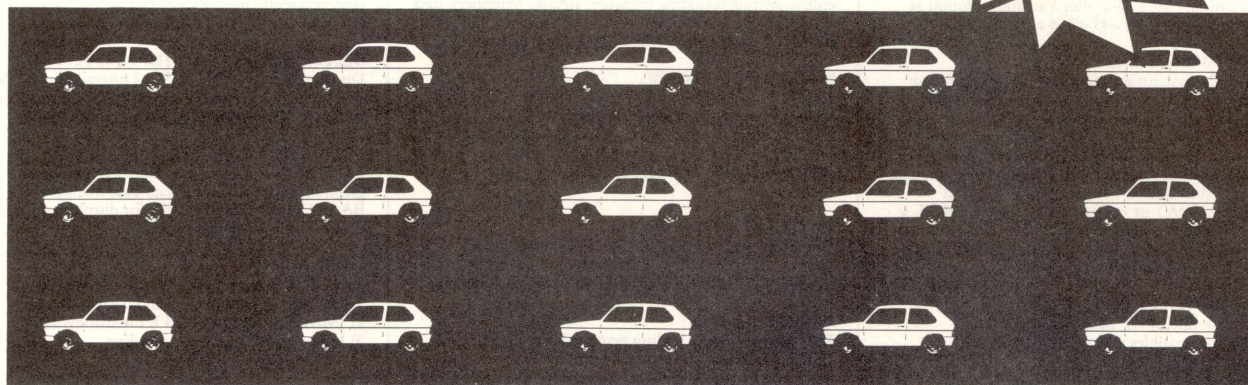
(717) 560-2001 • FAX (717) 560-2063

IN ORDER MANAGEMENT SOFTWARE:



THERE'S CUSTOM.

**HP-UX
MPE
MPE-iX**



THERE'S CANNED.

If you think it costs a fortune to have software tailored to your company's exact sales and purchase order requirements, think again. Cardinal's unique approach to order management gives you the fit and functionality of a custom solution for about the price of a canned package. The secret: the Cardinal Configurator, an exclusive architecture that lets

you specify, in detail, an unlimited number of order types and how each is processed. If your needs change, your systems can change with them — with no reprogramming.

Why settle for a canned solution? Or spend a fortune on custom? Call Cardinal. And get the best of both worlds.

AND THERE'S *CARDINAL*.



Cardinal Data Corp. • 75 Second Avenue • Needham, MA 02194

(800) 942-3366 • (617) 449-0066

Distributors: Los Angeles (714) 554-1551 • Melbourne/Sydney (03) 874-3633



INTEGRATED SOFTWARE FOR: ORDER MANAGEMENT • PURCHASING • INVENTORY • RECEIVABLES • PAYABLES • GENERAL LEDGER

CIRCLE 153 ON READER CARD

See us at ICMS Booth # 11

ADVERTISER INFORMATION

If you'd like more information about the products from the companies listed below, circle the appropriate number on the reader information card. This index is provided as an additional service. The publisher does not assume any liability for errors and omissions.

.....

ADAGER

The Adapter/Manager For IMAGE/3000 databases allows the manipulation of database objects with a wealth of action. Call (208) 726-9100, FAX (208) 726-8191 or circle 104.

ALDON COMPUTER GROUP

Change management, quality assurance and program testing software. S/COMPAREHARMONIZER, ANALYZER. Call (800) 825-5858 or circle 163.

BERING INDUSTRIES

Removable mass storage solutions, including hard disk drives, magneto-optical erasable drives, and high-capacity tape back-up for HP 3000/9000/1000 computers. Call (800) 237-4641, (408) 379-6900 or circle 105.

CAMINTONN

100% compatible memory for HP 9000, IBM RS/6000, Sun SPARCstations and other workstations. Call (800) 843-8336 or circle 294.

CARDINAL DATA

Sales order/distribution software for both the HP 3000 and 9000 product lines. We offer a custom solution at canned prices. Call (617) 449-0066 or circle 153.

CHESTNUT DATA SYSTEMS

Chestnut Data Systems provides three system software packages for HP 3000 minicomputer systems. CDS/SecReview, a security audit control system. Conveniently review security and require users to regularly change passwords. CDS/Scan, an online report display and archival system. View reports online, reduce printing and distribution costs and archive critical information to DAT or optical disk. CDS/ACORN, a batch scheduling and control system. Let users schedule and control their own production runs. Call (609) 662-1611, FAX (609) 662-3688 or circle 102.

COMPUTECH SYSTEMS CORP.

The complete line of HP 3000, 1000 and 9000 equipment, compatibles and accessories. Call (800) 882-0201 or circle 101.

COMPUTER SOLUTIONS

Computer Solutions is a Hewlett-Packard VAB in its 23rd year of operation. Businesses include HP hardware resale, disaster recovery services for HP 3000 users, school and pharmacy software, contract maintenance and depot repair. Call (201) 672-6000 or circle 167.

CONTEMPORARY CYBERNETICS

Contemporary Cybernetics manufactures a complete family of backup systems that range in capacity from the 150 MB QIC streamer to a 2 TB cartridge handling system. Call (804) 873-0900, FAX (804) 873-8836, or circle 112.

CORT DIRECTIONS INC.

Comprehensive payroll and personnel system for installations requiring the ultimate combination of horsepower and flexibility. Real-system trial available. Call (503) 388-3800 or circle 160.

CUMULUS TECHNOLOGY

Terminal compatible with HP 700/92 and 700/94. 40% bigger display. Two models, HCT or CET. Five year Continental USA warranty. Free demo. 1007 Elwell Court, Palo Alto, CA 94303. Call (415) 960-1200 or circle 242.

DATARAM

High-performance memory add-ins for HP 9000/345-375-380-400, HP9000/350-370, HP9000/360, HP9000/340, DN30x0, 3500, 4000, 4500, DSP 3000, 4000 Series workstations and servers. High quality and reliability at low prices. Call (800) 822-0071, in NJ (609) 799-0071 or circle 240.

DISC

Omniindex provides instant online relational access to corporate data. Combine OMNIDEX, OmniWindow, and OmniQuest for a complete online information system that can be added to any application with little or no code changes—all thru PC-like windows. Call (303) 444-4000 or circle 113.

EQUINOX SYSTEMS INC.

Intelligent Data PBXs provide reliable solutions for secure connectivity between multivendor host computers, terminals, PCs and peripherals. Call (800) 328-2729 or circle 115.

HERSTAL AUTOMATION LTD.

Reasonably priced data storage subsystems with performance in mind. Call (313) 548-2001 or circle 119.

HI-COMP AMERICA INC.

Backup for MPE V, MPE XL and HP-UX. High-speed execution, high-density data compression, unattended disk to disk operation and IMAGE database management. Call (800) 323-8863 or circle 120.

IEM INC.

Affordable hardware solutions, from memory boards and interface cards to the latest in optical disk technology. Call (303) 223-6071, (800) 321-4671 or circle 122.

INFOTEK

Focusing manufacturer of high-performance HP enhancements including memory, BASIC compilers, data acquisition boards and digital signal processors. Call (800) 227-0218; in CA (800) 523-1682 or circle 181.

INTERACTIVE SOFTWARE

UDMS™ - User Data Management System. The ease-of-use, connectivity and functionality leader for ReportWriting and 4GL data management of all major HP-UX, HP-MPE/iX and DEC-VMS databases. Call (800) 944-UDMS or (303) 987-1001 for a free demo or circle 214.

ISA CO. LTD. / TEXAS ISA, INC.

Complete range of mass storage devices and other peripherals for HP 3000, 1000 and 9000 from ISA. Call 81-3-(5261) 1160, FAX 81-3-(5261) 1165 or circle 245.

IXI CORP.

X.desktop—market leading graphical user interface for UNIX computers. Deskterm—software development tool to add a motif front-end to existing character-based applications. Call (510) 275-3120 or circle 470.

KELLY COMPUTER SYSTEMS

Manufacturer of performance products: RAMDISC, Spectrum memory, Classic memory, and PC and LaserJet memory. CPU upgrades also available. Call (415) 960-1010 or circle 185.

KEYWORD

Keyword KEYpak® software, running on either a computer system or LAN server, allows users to exchange documents between otherwise incompatible document processors or word processing systems. KEYpak software is designed to provide added flexibility for reversible document exchange between end-users on different computer systems by supporting system interchange architectures. Call (800) 866-6539 or circle 230.

KINGSTON TECHNOLOGY CORP.

Kingston Technology designs and manufactures memory upgrades for PCs, laptops, workstations and laser printers. The Kingston product line also features mass storage subsystems and processor upgrades. Call (800) 835-2545, FAX (714) 435-2699 or circle 281.

MARTECH

Highest quality solutions at the lowest price available. Complete line of memory products for HP 9000, 3000 and 1000 computers. Also RAM for Apollo Domain Series 2500-5500. Ship from stock. Call for your pricing today! Call (800) 582-3555 or circle 220.

M.B. FOSTER ASSOCIATES LTD.

Utility software supplier, specializing in PC/mini integration, EDI software and customer service and support. WRQ distributor. Call (800) ANSWERS or circle 155.

MICOM COMMUNICATIONS CORP.

Marathon servers send free voice and fax with data to remote offices. Free phone demo. Call (800) MICOM U.S. or circle 465.

MINISOFT INC.

Minisoft 92 for DOS and Windows providing HP terminal emulation and LAN connectivity for just \$129. Call (800) 682-0200 or circle 472.

NEWPORT DIGITAL CORP.

Accelerator cards for HP 9000 Series 200 plus HP 310 and HP 320. Ten-fold performance improvement. Call (714) 730-3644 or circle 246.

NSD INC.

With job management and MIS productivity products from NSD, your HP 3000/9000 will run smoother, faster and better. Call (415) 573-5923, (800) 538-3818 or circle 161.

O'PIN SYSTEMS

REVEAL from O'PIN SYSTEMS solves report distribution problems. Users go "paperless" and view reports directly from PCs or terminals. Saves time and fast payback too! Call (800) OPIN or circle 258.

OREGON DIGITAL COMPUTER PRODUCTS INC.

Distributor for the RT386SX-2 upgrade for HP Vectra ES and ES/12 personal computers. Dealer inquiries welcome. Call (800) 854-5678 or circle 489.

PROACTIVE SYSTEMS

FANTASIA for forms printing, enhanced reports and graphics. FLEXBASE for data-base management. BACKCHAT/BACKBONE for distributed systems. Call (415) 949-9100 or circle 485.

QUEST SOFTWARE

The only complete HP 3000 solution for:
1) High speed network file and database access,
2) IMAGE, KSAM and MPE file shadowing,
3) Low overhead network spooling.
Call (714) 720-1434 or circle 268.

SMITH, DENNIS AND GAYLORD INC.

Project Accounting and Financial Management systems featuring state-of-the-art tools. Call (408) 727-1870 or circle 497.

TYMLABS CORP.

BACKPACK

A family of high-speed and unattended backup software for HP 3000s. Free demo. Call (800) 767-0611 or circle 456.

TYMLABS CORP.

FORMATION

Formation for the HP 3000 is a complete electronic forms solution that lets MPEV and MPEXL users replace pre-printed continuous forms with electronically generated overlays printed on plain paper using laser printers. Call for free demo. (800) 767-0611 or circle 265.

TYMLABS CORP.

SESSION

Windows application that allows you to connect PCs to HP 3000s and HP 9000s. Supports Windows/286, Windows/386 and Windows 3.0. Call (800) 767-0611 or circle 141.

WALKER RICHER & QUINN INC.

Makers of Reflection Series Software. HP terminal emulation for PCs and Macintoshes. Call (800) 872-2829 or circle 222.

HP Professional

FAX Transmission Form

Free Information!

MARCH 1992 (Expires June 1992)

FAX NOW for Product Information. Do you need product information fast?
Well, now you can FAX your information requests directly to HP Professional for quick response.

It's Easy! Follow these 6 steps:

- ▲ **1.** In each box, print the numbers shown on the ads for the products you want more information about.

- ▲ **2.** Attach your mailing label below or print your name, address, telephone number and FAX number.

Name _____
Title _____
Company _____
Address _____
City _____ State _____ ZIP _____
Country _____

Telephone () _____ FAX () _____

Signature _____ Date _____

Please answer these questions:

- ▲ **3.** Do you wish to receive/continue to receive HP Professional?
01 ☐ Yes 02 ☐ No
- ▲ **4.** Please indicate which of the following you own or plan to purchase at this location
(Check all that apply.):
- 23 ☐ HP 3000 79 ☐ HP Apollo
33 ☐ HP 9000 86 ☐ Vectra
49 ☐ HP 1000 97 ☐ Other PCs (IBM, Macintosh, Clone)
- ▲ **5.** In my job I specify, approve, purchase or influence the purchase of the following
(Check all that apply.):
- 39 ☐ Hardware
79 ☐ Software
97 ☐ Other services and products
99 ☐ None of the above

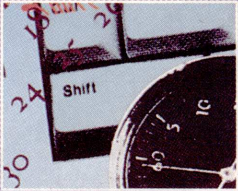
- ▲ **6.** Detach and FAX this form to the Marketing department.

In the US: (215) 957-4264 Outside the US: 010 1 (215) 957-4264

Thank you. Your request will be processed immediately.

HP Professional

• 101 Witmer Rd. • Horsham, PA 19044 • (215) 957-1500 • FAX (215) 957-4264



HP-UX

Andy Feibus

ries "Know Your _____" (fill in the blank with your favorite rarely-defined-but-often-used technical issue). This month's hot topic: POSIX.2, also known as the IEEE 1003.2-199x. This column is based on the information contained in Draft 11.1 (June 1991); final approval of the standard is expected to occur by June 1992. The final standard should be similar to the information presented here.

Most UNIX-based operating systems are currently compliant with POSIX.1 (IEEE 1003.1-1988), which describes a portable operating system interface and environment at the source code level. POSIX.2 describes a command interpreter (the shell) and a set of common utilities that many applications may need to run.

The intent of POSIX.2 was to include only those utilities and shell features that might be needed by application programs (including shell scripts). The standard doesn't specify the interactive features of the shell language or utilities you might want to use. In general, a feature is included only if it might be needed by an application program and if it could be executed either with a pipe or in background mode. In fact, the standard requires that any POSIX.2 feature be executable from either the pipe(2) or the system(3) library routines.

POSIX.2, like POSIX.1, borrows

Soon To Be Approved: POSIX .2

Developer's Aid

This month I present another episode in the continuing series

heavily from the existing UNIX implementations and avoids directly conflicting with historical practices. Only in a few cases was one particular implementation of a utility selected over another implementation, and the choice was usually made because the implementation was either vastly superior or more popular. Because of this practice, most implementations of UNIX (including HP-UX) should be POSIX.2 compliant soon after its final approval. Other operating systems will require more effort to comply with POSIX.2.

What's In It?

So, what's in the standard? A POSIX.2 compliant system supports the functional

in this standard, don't worry — you may find the command as part of the POSIX.2a standard, which specifies the "user portability extension" to POSIX.2.

The shell specified by POSIX.2 is based on the Korn Shell (see October 1991 and January 1992 HP-UX columns). However, the standard only covers those features deemed necessary for creating shell scripts. Shell aliases, job control, and shell interaction weren't included in the standard; these features are being negotiated as part of POSIX.2a.

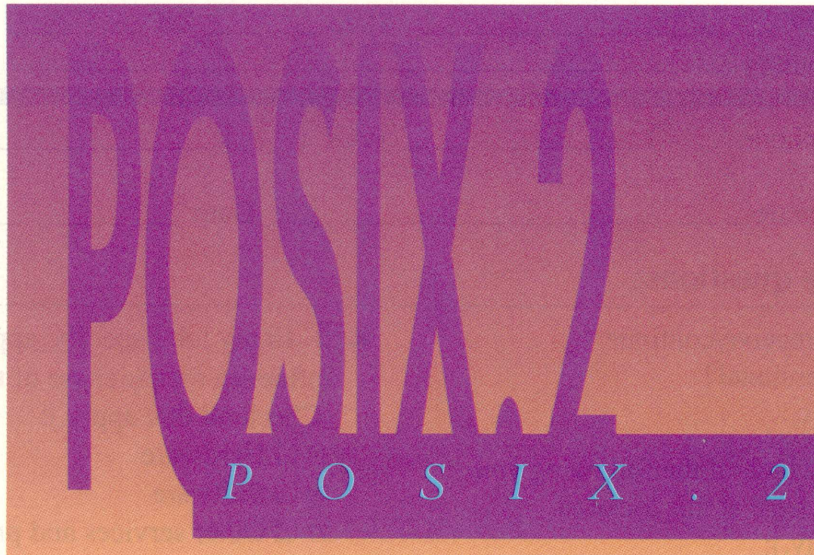
Gee, How Can I Get a Copy?

If you develop software applications, I highly recommend purchasing a copy of this standard from IEEE. To order, call

either (800) 678-4333 or (908) 981-0060 and request a copy of the 1003.2 standard. My Draft 11.1 copy cost \$100; copies of later drafts or of the final standard may be priced differently. Ask about the 1003.2a draft standard while you're at it.

By the way, HP tells me that you should expect HP-UX to be mostly compliant with POSIX.2 next year and fully compliant in the first-half of 1993 (assuming the standard is actually approved

by the summer). — *Andy Feibus is an interplatform systems consultant based in Atlanta, GA and author of UNIX, Quick! from Professional Press Books.*



behavior of the shell command language and 71 utilities. The shell command language is based on the Korn Shell (ksh, which the standard renamed sh). Additionally, a set of optional sections also are defined (e.g., Software Development Utilities Option), although a conforming system doesn't need to implement the features detailed in these sections.

If your favorite command isn't present

Would you like to continue to see articles on this topic?
Circle on reader card
yes 336 no 335

The commands/utilities specified as part of POSIX.2 are:

Command Description

awk Based on the new version of awk (aka *nawk*), a pattern scanning and processing language.

basename Return the non-directory portion of a filename.

bc An arbitrary-precision calculator.

cat Concatenate and copy files to standard output.

cd Change working directory.

chgrp Change group ownership of a file or directory.

chmod Change file/directory access permissions.

chown Change owner of a file/directory.

cksum Generate a checksum value. Similar to *sum* except that *sum* isn't included in POSIX.2, because irreconcilable differences existed between the BSD and System/V versions.

cmp Compare two files. The files may be binary.

comm Select/reject lines common to two files.

command Execute a simple command. Used to favor a standard command over a shell function.

cp Copy files.

cut Cut (remove) selected fields from each line of a file.

date Write the date and time in a specific format.

dd Copy a file, possibly converting the file using specific input and output block sizes.

diff Compare two files.

dirname Return the directory portion of a filename.

echo Write arguments to standard output.

ed A simple, line-oriented text editor.

env Set/display environment for command invocation.

expr Evaluate arguments as an expression and write the results.

false Return false value (a non-0 return code).

find Find files based on certain attributes (e.g., the file's name or last modification time).

fold Filter for breaking lines greater than a specified width.

getconf Get the size of any system configuration variable.

getopts Parse command-line options. Used primarily with shell scripts.

grep File pattern searching.

head Return the first part of a file's contents to standard output.

id Return the identity (user and group id) for the current user.

join Output a single, combined line for every line in two files that have an identical "join field".

kill Terminate or send a signal to a process.

ln Create a "hard" file link. Symbolic links aren't part of the POSIX.2 standard.

locale Get location-specific information.

localedef Define locale environment.

logger Log messages, although the standard doesn't specify where these messages are recorded.

logname Return the user's login name.

lp Send files to a printer.

ls List directory contents.

mailx Process mail messages.

mkdir Create a directory.

mkfifo Make a FIFO (named pipe) special file.

mv Move files.

nohup Invoke a utility and make sure that the signal SIGHUP is ignored.

od Dump files in either hexadecimal, octal, character, decimal or floating point.

paste Concatenate corresponding lines of two or more files.

pathchk Check that one or more pathnames are valid (i.e., could you access or create the file/directory without error?).

pax Portable archive interchange utility. Intended to replace *@@Bcpio@@SR* and *@@Btar@@SR*.

pr File formatter.

printf A new form of *echo* that provides formatting similar to that provided by the library routine *printf(3)*.

pwd Return the current working directory.

read Read a line from standard input.

rm Remove files and directories.

rmdir Remove an empty directory.

sed Stream editor.

sh The standard command language interpreter. Similar to the Korn Shell in syntax. Interactive usage will be defined in POSIX.2a standard.

sleep Pause for a specified period of time.

sort Sort the lines in a file, merge lines of a set of files, or check that a file is sorted already.

stty Set the terminal control options. Possible options correspond to the terminal line modes defined by POSIX.1.

tail Return the last part of a file's contents.

tee Copy output from standard input to standard output, optionally making a copy in one or more files.

test Evaluate an expression, returning 1 if the expression is false and 0 if the expression is true.

touch Change the file access and modification times.

tr Copy standard input to standard output, substituting or deleting selected characters.

true Return 0 as an exit code.

tty Return the user's terminal name.

umask Set the file mode creation mask for the current shell environment.

uname Return the information about the system, including system name, hardware type, node name, operating system release level and implementation name.

uniq Report or ignore repeated lines in a file.

wait Wait for completion of a particular process.

wc Word/line/byte counter.

xargs Construct an argument list and invoke a specified utility with this list.

Cygnets OPServant Serves As Management Tool

Cygnets Software announced its OPServant PC Windows-based system management tool for the HP 3000. The OPServant is a software solution for system management, covering job monitoring, output control and command extension.

OPServant applications perform Copy, move and delete commands on specified filesets, groups and accounts, or spoolfiles; session handling including message broadcasting for system availability, and automated abort of sessions for batch processing; JCL monitoring for conditions on criteria such as batch run errors and aborts, and alerting operation personnel of exceptions; report distribution automation, reporting by department, logging report output history, creating banner pages, copying and collating output, and routing output to mainframe or remote PC printers; file set data manipulation (search and modify data strings); invoking third-party utilities automatically; and monitoring and event logging of system interfaces.

System requirements are a 386-based computer running Windows 3.0 and a serial port connected to the HP 3000. The OPServant price is \$1,499.

Contact Cygnets Software, P.O. Box 4667, Incline Village, NV 89450; (702) 831-4652.

Circle 400 on reader card

Kelly Enhances Product Line With Memory Arrays

Kelly Computer Systems shipped its 32 MB RAMDISC memory arrays for the HP 3000 Series 9X7 and the HP 9000 Series 8X7.

RISC systems inherently use large amounts of memory. The new PA-RISC 1.1 architecture achieves higher levels of performance because of improvements in I-cache, D-cache and TLB hardware in the processor.

Additionally, operating system improvements (in MPE XL and HP-UX) in

areas such as the memory manager, the scheduler, the dispatcher, and mapped files allow increases in performance with increases in main memory.

Kelly's RAMDISC/XL also uses the 32 MB arrays as a solid state disk to eliminate I/O bottlenecks from the system. I/O is fed immediately to the requesting program in less than 1 ms.

The 9X7 and 8X7 families support a maximum of 384 MB of memory.

Kelly's Model 3907A provides 32 MB of memory and is fully compatible with the Series 917 through 977 and the Series 817 through 857. The memory subsystem uses 4 Mbit dynamic RAMs with an access time of 80 ns. System features such as single bit error correction, double bit error detection, memory error logging and battery backup are supported.

Contact Kelly Computer Systems, 274 Ferguson Dr., Mountain View, CA 94043; (415) 960-1010.

Circle 399 on reader card

PeopleSoft Delivers PS/HRMS For Microsoft SQL Server

PeopleSoft Inc. announced PS/HRMS, a Windows 3.0-based, client-server human resource application, on Microsoft SQL Server for OS/2.

PS/HRMS is a fully-integrated system offering international support and comprehensive payroll, benefits, flexible benefits and human resource functionality. Customers use PeopleTools, a Windows-based development environment, to design, customize and maintain their PS/HRMS application.

PS/HRMS supports Microsoft's MS-DOS, OS/2 and the LAN Manager networking operating system, as well as Microsoft Word and Excel reporting tools. It also is available on SQLBase on OS/2 and DB2 on MVS.

With PS/HRMS, SQL Server users can handle management of recruiting, benefits and

personnel administration, training and development, career planning, and position control, all in a client-server, Windows 3.0 environment. SQL Server offers PS/HRMS users the benefits of a high-end OS/2 relational database.

PS/HRMS for SQL Server ranges in price from \$150,000 to \$350,000 depending on hardware configuration.

Contact PeopleSoft, 1331 N. California Blvd., Walnut Creek, CA 94596; (510) 946-9460.

Circle 398 on reader card

Version 9.5 Functionality Broadens HP 3000/JOBSCOPE

Jobscope released the HP 3000/JOBSCOPE application version 9.5, which includes new features that allow the user to specify the date format to be used in streams, either MDY, YMD or DMY; provide the ability to store records during entry and make corrections on the screen prior to the record's being processed; automatically calculate the quantity completed based on the number of hours reported; allow the user to receive several PO Line Items simultaneously; provide the ability to manually enter the date received on all screens related to receiving. If the date field is left blank, the system date is used; split material browse from material analysis, allow the user to access material browse more easily; display an asterisk (*) on the user text function key label when user text has been entered for a displayed record; and allow the user to select estimates to be stored.

Contact Jobscope Corp., P.O. Box 6767, Greenville, SC 29606; (803) 234-4847.

Circle 397 on reader card

Proactive Enhances FANTASIA For HP 3000/LaserJet Users

Proactive Systems announced a new release of the FANTASIA laser printing software. FANTASIA provides forms printing, report enhancement and graphics for HP 3000/LaserJet users.

In this release all the common bar code formats now are supported. Also, new free fonts have been added including MICR fonts that can be used for check printing. Other improvements include: a new command to simplify the formatting of tabular data; the ability to emulate multipart preprinted forms automatically without changing the users application in any way; a spoolfile processing module that supports automatic processing and distribution of laser printed output, and changes to allow support of all the facilities of the LaserJet IIISI and the HP 5000 series printers.

Contact Proactive Systems, 4 Main St., Los Altos, CA 94022; (415) 949-9100.

Circle 396 on reader card

Pacific Magtron's Disk Drive Provides 14 ms Seek Time

Pacific Magtron Inc. introduced its MT-6120 1.2 GB 5-1/4 inch hard disk drive.

The MT-6120 has an unformatted capacity of 1,204 MB. Its high-performance rotary voice-coil actuator provides an average seek time of 14 ms, with a maximum seek time of 30 ms.

The MT-6120 is available initially with a SCSI interface and offers a SCSI bus transfer rate of 5.0 MB per second. Its advanced dual-buffer printer system supports high speed data access. Sector size can be specified with one-byte granularity from 180 to 4096 bytes for optimum disk utilization.

Contact Pacific Magtron Inc., 568-8 Weddell Dr., Sunnyvale, CA 94089; (408) 744-1188.

Circle 395 on reader card

PROGRESS Encourages PC To UNIX Connectivity

Progress Software's latest version of PROGRESS, its application development environment, adds comprehensive support for LAN-based application developers. The PROGRESS application development environment consists of a 4GL and RDBMS, as well as associated tools for application

development, and end-user query and reporting.

The key features include: A PROGRESS NLM Server that allows users to run database management systems on the Novell NetWare 3.11 File Server while also using print, file and other network services; Windows 3.0 compliance, which brings the benefits of the Windows environment to PROGRESS developers and end-users; new options for PC to UNIX connectivity.

Progress also has added support for HP's ARPA Services, FTP Software Inc.'s PC/TCP, Novell Inc.'s Portable NetWare and LAN WorkPlace for DOS, Sun Microsystems Inc.'s PC/NFS, and Wollongong Group Inc.'s PathWay; and support for the CTOS Cluster Protocol that enables PROGRESS DOS clients to access CTOS-based PROGRESS database servers.

Prices for the Windows-compliant version of PROGRESS range from \$225 to \$1,675. PROGRESS NLM Server packages range from \$1,125 to \$15,100.

Contact Progress Software Corp., 5 Oak Park, Bedford, MA 01730; (617) 275-4500.

Circle 394 on reader card

HP NewWave Users Benefit From HP & Simpac Remark!

HP and Simpac Associates Inc. announced Remark! for HP NewWave 3.0 for Windows, a voice-integration product that lets NewWave users create, edit and play back voice messages within the HP NewWave desktop manager.

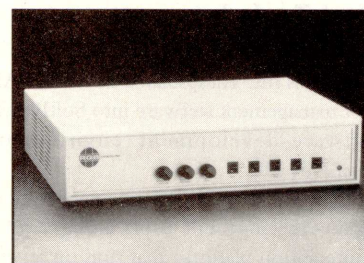
Remark! requires no additional hardware, and it works with existing IBM-compatible PCs, telephones, LANs and telecommunications networks.

Unlike voice mail alone, this product allows users to store voice on their desktop manager, move it across a computer network and share it with any HP NewWave user.

To create a voice message, the user opens an icon on the HP NewWave desktop manager and selects a location in which to

New Model

Convert Computer Graphics to Television



RGB/Videolink® Model 1450AX with Auto-sync

The versatile full range scan converter for video taping, video projection and video teleconferencing

- Adjustment free auto-locking to all workstations, PCs and Mac IIs
- Horizontal scan range 21 to 80 kHz
- Full broadcast quality encoder and sync generator
- Flicker free output
- Genlock
- Linear keyer for overlaying live video with computer graphics
- Zoom EGA to fill video screen
- Full 24 bit color processing
- Wide range of outputs; Composite (NTSC or PAL), RGB, S-Video, Betacam / MII
- Manufactured in the USA
- Other models available from \$10,995



SPECTRUM

950 Marina Village Parkway
Alameda, CA 94501
Tel: (510) 814-7000
Fax: (510) 814-7026

store the message. Remark! displays a window that resembles a tape recorder with buttons that record, play, pause, restart, fast forward, or rewind voice messages.

Remark! also stores recordings from voice mail systems and conference calls.

Prices range from \$5,500 to \$20,000, depending on system configuration and the number of concurrent users.

Digital Tools Integrates AutoPLAN Into SoftBench

Digital Tools Inc. encapsulated its AutoPLAN project management software into SoftBench, a software-development environment produced by HP.

SoftBench provides an integrated set of program-development tools along with a tool-integration platform that runs on several workstations and allows disparate software tools to communicate with one another.

AutoPLAN, designed for project managers, provides a framework for organizing a project's many variables. It enables the user to view the network of

relationships involved in a project and quickly explore alternative or "what-if" scenarios.

The encapsulation of AutoPLAN into SoftBench framework allows users to develop and maintain their project schedules directly from other software applications operating within SoftBench. Schedules can be modified as the work occurs, rather than remembering the status of work items at an end-of-week project update session. Project activities can be added, deleted or edited in the AutoPLAN schedule from any software application.

AutoPLAN runs under a UNIX operating system on the HP Apollo 9000 Series 400 and the recently introduced HP PA-RISC-based Series 700.

Contact Digital Tools Inc., 18900 Stevens Creek Blvd., Cupertino, CA 95014; (408) 366-6920.

Circle 393 on reader card

Boston Software Works Distributes InterOFFICE V2.0

The Boston Software Works announced a new version of its InterOFFICE electronic

mail gateway for several integrated office systems, including HP's DeskManager, DEC's ALL-IN-1 and Wang's OFFICE.

The InterOFFICE product family is a software-only solution patterned after the OSI X.400 and X.500 recommendations that require only one copy of InterOFFICE per HP 3000, DEC VAX, Wang VS or IBM AS/400 office system network.

InterOFFICE transparently automates directory synchronization, conversion of revisable documents, conversion of structured messages, and translation of multinational character sets. Users of one integrated office system can send any office system object, including text memos, revisable word processing documents, meeting invitations, or binary files such as spreadsheets, to users of remote, foreign, and incompatible office systems, without learning any new commands, addressing formats or keystroke sequences.

InterOFFICE version 2.0 is available at a one-time license fee ranging between \$4,500 and \$24,500 per office system platform.

Networking and data communications — easy as

The simple way to learn the complex concepts of networking and data communications . . .
The Professional Press Books Networking and Communications Library

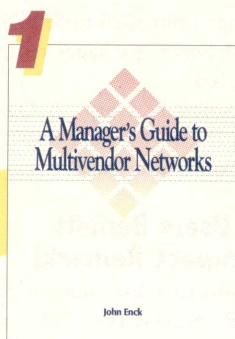
ORDER NOW!

Easy as 1-2-3 . . .

Phone (215) 957-4265 . . .

FAX (215) 957-1050 . . .

CompuServe mail user #76702,1565



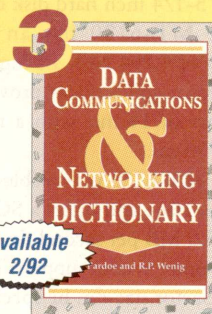
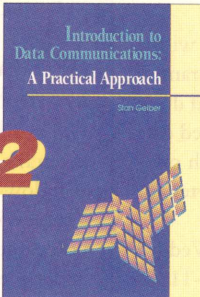
A Manager's Guide to Multivendor Networks

John Enck

Softcover, 250 pages **\$35**

Introduction to Data Communications: A Practical Approach
 Stan Gelber

Softcover, 314 pages **\$39**



Available 2/92

Data Communications & Networking Dictionary

T.D. Pardoe and R.P. Wenig

Softcover **\$24**

Networking and Communications Library Order Form

Name _____
 Title _____
 Company _____
 Address _____
 City/State/Zip _____
 Country _____
 Phone () _____ FAX () _____
 Street address required.
☐ Check enclosed \$ _____. Charge to: ☐ VISA ☐ MasterCard ☐ American Express
 Account No. _____ Exp. Date _____
 Signature _____ Date _____

Qty.	Title	Subtotal
	A Manager's Guide to Multivendor Networks \$35	
	Introduction to Data Communications: A Practical Approach \$39	
	Data Communications & Networking Dictionary \$24	
	PA residents add 6% sales tax	
	UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information.	
	TOTAL ORDER	



Clip and mail with payment to:

Professional Press Books

101 Witmer Rd., P.O. Box 446, Horsham, PA 19044

HPHH0392

Contact The Boston Software Works Inc., 120 Fulton St., Boston, MA 02109; (617) 367-6846.

Circle 392 on reader card

RECITAL Version 7.1 Performs On HP 9000s

Recital Corp. announced the availability of RECITAL version 7.1 running under UNIX on the HP 9000 Series 300, 400, 700 and 800 workstations.

New features of RECITAL 7.1 include support for RECITAL/4GL, executable programs executing from shared global memory, which reduces memory requirements for large applications. Recital also introduced a distributed cache manager, as well as over 60 additional enhancements to its 4GL and associated development tools.

RECITAL's new shared global memory support allows compiled 4GL programs and procedure libraries to be loaded into shared memory. A RECITAL application is transparently loaded once into memory and shared by any number of users. This functionality provides enhanced memory utilization and reduced paging.

Also included in RECITAL 7.1 is support for a distributed cache manager (DCM). The DCM implements a sophisticated caching technique that allows database and index I/O operations to be reduced. The DCM operates on single cpus, networked cpus and VAX cluster configurations.

Contact Recital Corp., 85 Constitution Lane, Danvers, MA 01923; (508) 750-1066.

Circle 391 on reader card

Hybrid Systems Solutions Breeds LaserSprint EX

Hybrid Systems Solutions released the LaserSprint EX, a full-feature, 300 dpi, 16 pages-per-minute (ppm) continuous-form laser printer that offers full HP LaserJet compatibility with added functionality. The LaserSprint EX provides complete support for stand-alone printing environments and most leading LAN-distributed computing environments including HP, DEC, IBM, PC, Novell and Data General platforms.

The LaserSprint EX is the first in a family of continuous-form, unattended operation laser printers using Hybrid's HP compatible controller. The enhanced LaserSprint EX controller boosts processing speeds up to 16 ppm on most jobs and provides 2 MB of

main memory, expandable to 8 MB. Based on a 16-ppm tractor-fed laser engine offering 300 dpi, the LaserSprint EX arrives fully loaded with RS 232 and Centronics parallel interfaces and an IBM Twinax interface is also available. The printer provides complete terminal emulation support for the HP PCL4 and ASCII line printer standards.

The LaserSprint EX is \$7,295.

Contact Hybrid Systems Solutions Inc., 347 Congress St., Boston, MA 02210; (617) 357-1838.

Circle 390 on reader card

Automated Technology Releases Enhances RQM

Automated Technology Associates (ATA) released an enhanced version of RQM. RQM's latest enhancements include the ability to support multiple servers, additional X Window capabilities, a new manual data entry facility, and operator work instructions.

This version of RQM easily increases applications capacity through the use of multiple servers in a client-server configuration. This has become even more important with the significant gains in computational power offered by today's workstations, minicomputers and PCs. This option also allows for better utilization of hardware resources regardless of whether it's new or existing equipment. The new manual data entry facility and operator work instructions feature, increase user productivity by avoiding unnecessary time delays due to operator error, or lack of adequate knowledge or timely instruction information.

RQM now includes the X Windows version of ATAPLOT. ATAPLOT is ATA's interactive/programmatic technical graphics development and analysis tool. The X Windows version of ATAPLOT provides the necessary graphics support, required by RQM, for x-devices allowing users to be fully supported in an X Windows environment.

Contact Automated Technology Associates, 9000 Keystone Crossing, Ste. 1000, Indianapolis, IN 46240; (317) 573-9000.

Circle 389 on reader card

Lund Solutions Unveils New HP 3000 Solutions

Lund Performance Solutions introduced two new applications for MPE V and MPE XL HP 3000 systems.

FORECAST/3000 Capacity Planner is a

First there was translation software. Then there was mapping software. Now there is a solution that includes even more ...

EDI WINDOWS™ introduces the functionality to effectively manage and control the complete EDI process between business application software and value-added networks.

EDI WINDOWS™ uses windows technology on terminals for ease of navigation. Pull down menus and pop-up help included.

To find out more about this exciting new product for Hewlett Packard mini-computers (HP3000 & HP9000) and DEC mini-computers (VMS).

CALL



**M.B. Foster
Associates Limited**

1-800-ANSWERS
(1-800-267-9377)
(613) 448-2333

or
FAX us at (613) 448-2588

EDI WINDOWS™ is a trademark of trinary systems inc.

EDI WINDOWS™

PC-based prediction tool that allows you to predict future hardware requirements as well as the effect of application changes. Data collection is performed on MPE XL and MPE V, and the analysis and graphic display is performed on an IBM PC or compatible. Utilizing host data, FORECAST/3000 Capacity Planner calculates and reports

current and future response times, utilizations, and throughput for user defined workloads.

Q-Xcelerator Resource Manager provides continuous supervision of the cpu resource. You direct Q-Xcelerator as to which applications are to receive priority response time. Available for MPE V and MPE XL HP 3000 systems.

Prices for FORECAST/3000 Capacity Planner start at \$1,195. Q-Xcelerator is priced starting at \$995.

Contact Lund Performance Solutions, 34130 Parkwoods Dr. N.E., Albany, Oregon 97321; (503) 327-3800.

Circle 388 on reader card

Tymlabs And Bradmark Enhance BackPack/XL

Tymlabs Corp. and Bradmark Technologies announced DBCHECK as an add-on module to Tymlab's BackPack/XL system backup utility for MPE XL systems.

While adding only five to 10 percent more cpu time to backup operations, DBCHECK verifies and reports on areas such as label corruption, bitmap inconsistencies, synonym and chain pointer inconsistencies, and delete chain corruption of IMAGE databases. BackPack/XL's new database diagnostic function is activated by adding the DBCHECK keyword to the STORE command. If any root file errors, file errors, master set errors or detail errors are found, messages are sent to a file called DBCKLIST. A printed report can be easily generated from this file.

The performance overhead added by using the DBCHECK option depends on the percentage of data on the system that is in the IMAGE database. Tymlabs reports that given a fileset composed 50 percent of IMAGE databases, the integrity check adds about eight percent to the total backup time.

With the DBCHECK option, the price of BackPack/XL ranges from \$2,000 on a Series 917 to \$16,000 on a Series 980. Current BackPack/XL users can purchase the new module as an upgrade, priced from \$400 to \$3,200.

Contact Tymlabs, 811 Barton Springs Road, Austin, TX 78704; (512) 479-0735.

Circle 387 on reader card

SSG Enhances PROBE/X UNIX Performance Monitor

Strategic Software Group released version 2.00 of PROBE/X, its UNIX system performance monitor.

PROBE/X version 2.00 has been enhanced to provide information on full filename support, improved device access statistics, stream queues, per-process memory detail (including address space and shared libraries information) and file access history (listing last 100 files accessed).



*Linda Hughett,
Merchandising
Equipment Group*

Cort Human Resources, a remarkable system at an affordable price!

Finally, a fully integrated HR program.

With all the special functions you've been asking for. Cort Human Resources puts your company on the cutting edge – at a manageable price. Ask for a demo today!

"Cort cured our payroll struggles"

"I had struggled for years with payroll. Then, two years ago we discovered The Cort Payroll and it's been so much easier. Now, I can do all of our reports myself. The Cort support people are great – always ready to help. How can you improve on something that's so good?"

Does your current payroll need improvement? Look into the software people are bragging about. The Cort Payroll system can save you time and money – call Cort today!



130 NW Greenwood Ave. Bend, OR 97701
(503) 388-3800

Finally, a Session your Mac can sit in on.

Session gives you full HP 2397, VT100, and HP ANSI emulations, all in one package

Session lets your Mac talk to your host computer over Local Area Networks

MS-Windows and HP NewWave versions are compatible. That means reduced training and support costs.

Session for Macintosh 4.0.

Where hosts and desktops meet.

Mac users sometimes end up on the sidelines when it comes to sharing host information. Not anymore. Now there's Session 4.0 for the Macintosh®, Tymlabs' newest version of the hottest-selling Mac-to-host connectivity software in the HP market.

Session for Macintosh gives you point and click access to any HP, DEC, or UNIX-based host. Business Session provides complete emulation of HP 700/92, DEC VT100, and HP ANSI terminals. Graphic Session adds full HP 2397 color graphic capabilities. And fast file transfer support is included in every copy of Session.

Hand your communications tasks over to TermTalk: New in Session 4.0.

Use TermTalk to automate both routine and sophisticated Mac-to-host interactions, like logging on, checking E-Mail, or retrieving data for later analysis. Session's built-in editor and recorder can even build the script for you. TermTalk does it all.

Expanded networking connections: A Session exclusive.

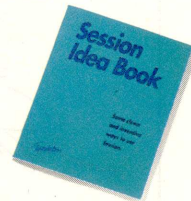
Session makes your Mac a part of your company's network. You can access HP, DEC, or UNIX hosts over a variety of local and wide area networks, including serial, X.25, Appletalk and Ethernet.

Find out more.

Ask for your FREE copy of the Session Idea Book, which includes some great ideas on how our customers have already put Session to work.

Interested in trying Session? We'll send you a fully-operational trial copy with a full 30-day, money-back guarantee. No obligation. Just call us.

1-800-767-0611



Tymlabs®

Business Session and Graphic Session are registered trademarks of Tymlabs Corp. All other brands and product names are trademarks or registered trademarks of their respective owners.

CIRCLE 141 ON READER CARD

Tymlabs Corporation
811 Barton Springs Road
Austin, Texas 78704 USA
(512) 478-0611
Fax (512) 479-0735

Tymlabs (UK) Ltd.
Munro House, 9 Trafalgar Way
Bar Hill, Cambridge, UK CB3 8SQ
0954-780088
Fax 0954-780001

RT386SX-2 Upgrade

For HP Vectra ES and ES/12

NEW!

The RT386SX-2 is a complete motherboard replacement designed specifically for the HP Vectra ES and ES/12. The processor is a 20 MHz Intel 80386SX with a Chips and Technologies chip set. Keyboard connectors, power connections and the shape of the upgrade board are identical to the Vectra mother board being replaced. The board supports up to 8 MB of RAM using 70ns SIMMs. Pricing starts at \$699 plus memory. Call today for more information and volume discounts.

MORE SPEED - Up to 2.5 times faster
MORE APPLICATIONS work better, faster
MORE USEFUL LIFE for your Vectra
LESS MONEY than buying new equipment

OREGON DIGITAL
COMPUTER PRODUCTS, INC.
885 NW GRANT AVE., CORVALLIS, OR 97330

Call for more information
1-800-854-5678

All brand and product names are trademarks or registered trademarks of their respective companies.

CIRCLE 489 ON READER CARD



KVIE Channel 6
TV Worth Watching

P.O. Box 6
Sacramento, CA
95812-0006

October 23, 1991

Russell Davis
Walker Richer & Quinn, Inc
2815 Eastlake Avenue East
Seattle, WA 98102

Dear Russell,

Here is the Software License agreement for Posthaste. Sorry it's taken so long to get it returned to you. I want to let you know how much everyone here at Channel 6 likes Posthaste. It has revolutionized this organizations communications. We are more productive but even more than that departments and individuals are sharing information and communications in ways they never did in the past. It is being credited with being the single most productive action to improve station morale in years. It makes me look like a hero (heroine), thank you.

Sincerely,

JC Strote

CIRCLE 222 ON READER CARD

PROBE/X version 2.00 is fully supported on HP-UX for the HP 9000 8xx/7xx, RS/6000 AIX, SCO UNIX, Sun SPARCstations and SPARCservers and Interactive Systems UNIX.

Contact Strategic Software Group, Ltd., 11050 5th Avenue N.E., Seattle, WA 98125; (206) 362-2231.

Circle 385 on reader card

TeleUSE GUI Development Tool Now Available On HP 9000/700

TeleSoft announced the availability of its GUI development tool TeleUSE on the HP 9000/700 family of workstations and servers.

TeleUSE is a user interface management system (UIMS) for interactive development of user interfaces based on OSF/Motif. Using TeleUSE, a developer can design, prototype, evaluate, code and maintain GUIs. TeleUSE includes an Interface Design Tool (IDT) that lets a developer interactively paint the static user interface using a WYSIWYG approach instead of manually coding calls to the X Window System or OSF/Motif.

TeleUSE's Dialog Manager gives the interface designer a set of tools for developing the dynamic parts of a user interface and eliminates at least 75 percent of the C language programming otherwise required.

TeleSoft also announced that the TeleUSE Porting Kit is now available for the HP 9000/700 platforms. The Porting Kit allows GUIs to be developed on the HP 9000/700 and then ported to any platform using the X Window System and OSF/Motif.

TeleUSE is currently supported on HP 9000 Series 400 and 700 workstations, HP Apollo, Sun SPARC systems, IBM RS/6000 and DECstation platforms.

TeleUSE is priced at \$7,500 and includes OSF/Motif version 1.1.3. and X11R4. The optional Porting Kit license fee is priced at \$3,500.

Contact TeleSoft, 5959 Cornerstone Court West, San Diego, CA 92121; (619) 457-2700.

Circle 384 on reader card

Dennis And Schwab Release Turbo Edit For MPE XL

Dennis and Schwab Inc. announced Turbo Edit, a programmer's editor making full use of the facilities available in MPE/XL (iX). Designed as an element of an ongoing line of software, Turbo Edit eases the development and support of HP 3000 software.

NEW PRODUCTS

Turbo Edit's user interface is a multi-window, full screen, character mode, WYSIWYG display. Keystrokes are minimized through the use of programmed function keys, special keys and a macro capability, all implemented using the typeahead facility. The eight function keys are downloaded with the most commonly used requests; Mark, Delete to Save, Copy to Save, Insert Save, Goto, Delete, Search and Menu.

Users can open up to 20 buffers containing up to 20 source files that can be manipulated simultaneously (including Cut and Paste) with up to four windows displaying different buffers or different regions of the same buffer. Repetitive operations are enhanced through a MACRO facility. Any completed request can be repeated as a single key REPEAT LAST request. Turbo Edit performs over 100 edit requests covering Windowing, File Related, Cursor Movement, and Miscellaneous Requests including executing MPE/XL commands or interrupting to MPE/XL.

Turbo Edit has been tested on most HP terminals, compatibles and PC terminal emulators, including the HP2392a, HP700/9x, and Reflection connected asynchronously via the DTC.

Turbo Edit software licensing is priced from \$1,500 to \$7,300 based on the HP model number.

Contact Dennis and Schwab Inc., 17330 Newhope St., A, Fountain Valley, CA 92708; (714) 241-2445.

Circle 383 on reader card

IEM's New 8mm Drives Offer Built-In Data Compression

IEM Inc. released new 8mm tape drives with built-in data compression. The new drives double, triple or quadruple the capacity of an 8mm tape cartridge without slowing the transfer rate.

IEM drives with built-in data compression have a number of special features to assist users in making full use of data compression. Data compression can be turned off or on from the terminal, front panel, or through driver instructions, allowing users to easily write an uncompressed tape to be read on another 8mm tape drive. IEM's drive automatically recognizes compressed or uncompressed tapes before reading them.

The front panel of these drives has been redesigned to provide users with the following information: current tape operation,

total data transferred, current transfer rate, tape drive and mode, compression status (on or off), current compression ratio, remaining capacity at current compression ratio, and error correction or rewrite percentage.

These drives are available for HP 9000 computers with SCSI interfaces, and are compatible with Series 300, 400, 700 under HP-UX 8.0, and Series 800 under HP-UX 8.05. Contact IEM Inc., P.O. Box 1889, Ft. Collins, CO 80522; (303) 221-3005.

Circle 382 on reader card

JOBTRAK/3000 Keeps Track Of Job Streams And Run Time

S.M. Gordon and Associates announced JOBTRAK/3000, a software package designed to help you keep track of the flow of your job streams as well as optionally keeping trending analysis on when jobs were run and how long they took to run.

One of the main functions of JOBTRAK/3000 is to scan through your job streams and create a cross reference of jobs streamed from other jobs. The report will show up to 10 levels of nested jobs, but will maintain an infinite nesting level internally. A side effect of this process is that JOBTRAK/3000 allows you to see what job gets streamed by other jobs as well as what jobs a job will stream.

The online process uses a proprietary PC like window interface. JOBTRAK/3000 will let you visually process a job stream through VESOF's STREAMX product to see what it will look like after it has been parsed. You may also set up an alias dictionary with descriptions that will allow the software to look for user defined keys as stream commands and flag them appropriately.

This process is specifically designed to either help with the migration to a batch scheduler or to help people who are new to a shop track down the jobs left over from their predecessor.

JOBTRAK/3000 is \$350.

Contact S.M. Gordon & Associates, 807 W. West Way Avenue, Orange, CA 92665; (310) 302-1118.

Circle 381 on reader card

1000
EVERYTHING IN
HEWLETT-PACKARD

3000
FROM ONE
RELIABLE SOURCE

9000
TEST
BUY
SELL
RENT
REPAIR

➤ 80/100 SERIES

➤ 200 SERIES

➤ 300 SERIES

➤ 400 SERIES

➤ 500 SERIES

➤ 700 SERIES

➤ PRINTERS

➤ PLOTTERS



TSA

1-800-422-4872

Tel 713/935-1500 • Fax 713/935-1555
2040 West Sam Houston Parkway North
Houston, Texas 77043

CIRCLE 137 ON READER CARD

Datasys

COMPUTER CORPORATION
BUY • SELL • LEASE • TRADE

Hewlett-Packard

- SYSTEMS
- UPGRADES
- MEMORY
- PERIPHERALS

Call Today 800-DATASYS
(328-2797)

Dallas Oklahoma City
(214) 931-9195 (405) 946-0440
FAX (214) 931-9619 FAX (405) 947-3046

CIRCLE 484 ON READER CARD

NORCO COMPUTER SYSTEMS, INC.

Hewlett-Packard Quality
at a NorCo Price

1000 • 3000 • 9000 • 250

BUY — SELL TRADE — LEASE

Processors, Peripherals
and Systems

21337 Drake Road
Cleveland, OH 44136-6620
FAX: 216-572-0636
216-572-4040 1-800-892-1920
(Outside Ohio)

CIRCLE 221 ON READER CARD

WHOLESALE H-P

"There's simply no reason to pay more."

Purchasers, Resellers and Component
Level Repairers of Hewlett Packard
Micro and Mini Computers
and Peripherals.

Spectrum • 9000 • 3000 • 1000 • MICRO

For Sales Please Call:

Mark Leonard

(202) 338-2429

1908 14th Street, N.W.
Washington, DC 20009
FAX: (202) 338-2462

EQUIPMENT
RESOURCES,
INC.

CIRCLE 213 ON READER CARD

9000, 3000, 1000 SYSTEMS PERIPHERALS COMPATIBLES

Buy • Sell • Trade
Maintenance



(US) 800 882-0201
(206) 820-6500
FAX (206) 820-6565

CIRCLE 207 ON READER CARD

The HyPoint Advantage . . . INVENTORY

"Specializing in Full
Line of
HP 3000 Products"

Buy ■ Sell ■ Trade ■ Lease

HyPoint Technology
600 Ken Mar Drive
Cleveland, OH 44147

1-800-231-5500
216-526-0323

CIRCLE 217 ON READER CARD

ELECTRONIC SERVICES, INC.

Est. 1973

Preowned
Hewlett Packard

Buy • Sell • Trade

Specialize in 9000/500
Sales and Repair

The Product is Guaranteed
The Price is Right

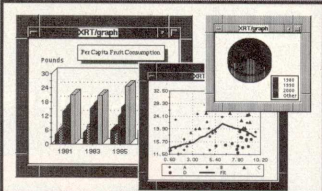
5187 Malaga Alcoa Hwy
Malaga, WA 98828

FAX 509 662-8271

509-662-9039

CIRCLE 212 ON READER CARD

XRT/graph™ Widget



For HP 9000 Motif developers

- Fast Updates, User Feedback
- PostScript output
- No royalties or run-time fees
- Includes *Builder* - a point-n-click prototyping and development tool

KL Group Inc. info@klg.com
1-800-663-4723 or (416) 594-1026

CIRCLE 253 ON READER CARD

IEEE-488

Hardware and Software Solutions

COMPUTER PLATFORMS

PC/XT/AT, EISA, PS/2, 386, Macintosh,
Sun-3/4 and SPARCstation, DEC/
VAXstation, IBM RISC System/6000,
HP/Apollo

BUSES

VMEbus, MULTIBUS, SBX, STD, SCSI

DRIVER SOFTWARE

DOS, Windows 3.0, OS/2, XENIX, UNIX,
386/ix, Domain/OS, SunOS, Macintosh OS,
VMS, ULTRIX, AIX

SUPPORT

Analyzer, Extenders, Expander, Converters,
Controllers, Buffer, Switch Box, Cables

(512) 794-0100
(800) IEEE-488



CIRCLE 492 ON READER CARD

HP-1000

BUY • SELL • TRADE • RENT

Hewlett-Packard
Computer Equipment

Complete product line
including Systems, Memory,
Discs, and Tapes.



HERSTAL

AUTOMATION LTD.
3171 West Twelve Mile Road
Berkley, Michigan, USA 48072
Telex 650-321-1560
FAX 313-548-2010
Phone 313-548-2001

CIRCLE 216 ON READER CARD



I/O Data Systems, Inc.

3000/9000/1000

HP

BUY/SELL/TRADE

(216) 835-2211

27378 W. Oviatt
Bay Village, OH 44140
FAX (216) 835-0220

CIRCLE 272 ON READER CARD

SYSTEM WAREHOUSE

BUY • SELL TRADE HP!

32A * 2833A * 2934A * 2225A/B/C/D THINKJET * 27310 * 87320 * 87318 * 87319 * 87350 * 87332 * 8734350 * 87345 * 87375 * 87370 * 98568A * 98570A * 9816A * 9817A/H * 9826A * 9836A/C/U/CU * 992EMORY * 80/100 SERIES * ROMS * INTERFACES * 27A * 9153A/B/C * 7945/46A * 7957A/B * 7958A/B * 70A * 7440A * 7475A * 7550A * 7570A DRAFT PRO * 76A EXL * 7580B * 7585B * 7595A DM * 7596A DM * 440A LJII * 33447A LJII D * 33471A LJII P * 9144A * 401A * 7978A * 7978B * 7980A * 7980XC * 2563A/B * 66A/B * 2932A * 2933A * 2934A * 2225A/B/C/D THINKJET PLUS * 87310 * 87320 * 87318 * 87319 * 87340 * 87360 * 87350 * 87345 * 87375 * 87370 * 985577A * 9888A * 9816A/S * 9817A/H * 9826A/S * 9820A/U * INTERFACES * MEMORY * 80/100 SERIES * EMORY * 9122D * 9127A * 9153A/B/C * 7945/46A * 938 * 7470A * 7470A * 7440A * 7475A * 7550A * 75775A DXL * 7576A EXL * 7580B * 7585B * 7595A DM * 0 D/E ESTAR * 33440A LJII * 33447A LJII D * 33471A * 45A * 5401A * 7978A * 7978B * 7980A * 7980XC * 66A/B * 2932A * 2933A * 2934A * 2225A/B/C/D THINKJET PLUS * 87310 * 87320 * 87318 * 87319 * 87340 * 87360 * 87350 * 87345 * 87375 * 87370 * 985577A * 9888A * 9816A/S * 9817A/H * 9826A/S * 9820A/U * INTERFACES * MEMORY * 80/100 SERIES * EMORY * 9122D * 9127A * 9153A/B/C * 7945/46A

800-877-7339

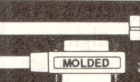
FAX: 713-944-5479

CIRCLE 251 ON READER CARD


THE BEST NAME IN

IEEE-488

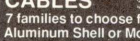
INTERCONNECT PRODUCTS




ADAPTORS
15 types - resolve many connector misfit problems.




COVER




CABLES
7 families to choose from. Aluminum Shell or Molded




BULKHEAD



SWITCH BOXES
9 types - including stand alone or rack-mounted.



MULTI-TAP BUS
3 types - bring order to multiple cable interconnections.



Inquiries 508 682-6936
FAX 508 685-6467
Toll Free Ordering: 800 343-1455

Call for FREE catalog! Specify HP-Pro

CIRCLE 197 ON READER CARD

HP 1000/3000 Hardware

- New & Refurbished
- Extensive Inventory
- Many Rare Items
- New Cumulus CRTs
- Repair & Exchange

201-672-6000



Computer Solutions, Inc.

CIRCLE 209 ON READER CARD

WE FIX H-P

- Expert Depot Repair
- 5-day Turnaround
- Buy and Sell
1000/3000/9000

CRISIS

800-729-0729

CIRCLE 211 ON READER CARD

HEWLETT-PACKARD 9000


IT'S OUR SPECIALTY.

PRINTERS
LaserJets
DeskJets
Rugged Writers

PLOTTERS
DraftPros
DraftMasters
Electrostatics

WORKSTATIONS
Series 80, 200, 300, 400

We offer large discounts, outstanding service and immediate delivery. Call us before you buy a printer or plotter!



TED DASHER & ASSOCIATES

4117 2nd Avenue South
Birmingham, AL 35222
(205) 591-4747 or (800)638-4833
Fax: (205)591-1108

CIRCLE 233 ON READER CARD

SHERLOCK

Systems & Solutions

Sensible Solutions To The Mysteries Of Your Hardware Requirements

Solutions . . . Not Just Answers

We inventory a large line of CPU's and peripherals.
MPE • MPE-XL • UNIX
Buy • Sell • Trade • Lease



CALL
1-800-827-6804
FAX
216-848-4515


CIRCLE 491 ON READER CARD

Not just remanufactured: HP Remanufactured

- HP 3000 & HP 9000 systems
- Workstations (Domain and HP-UX)
- Peripherals and accessories

**Why settle for less?
HP has**

- Largest inventory of HP products
- The latest engineering updates
- Full factory refurbishment
- Same warranty as new
- Installation, freight and insurance



**HEWLETT
PACKARD**

CIRCLE 496 ON READER CARD

OUR 15TH YEAR

QUALITY HP EQUIPMENT WITHOUT THE HP PRICE



DON'T UPGRADE YOUR HP SYSTEM UNTIL YOU GET A SECOND OPINION FROM THE SECOND SOURCE FOR HEWLETT-PACKARD 1000-3000-9000 EQUIPMENT

Consult with us about cost-saving alternatives

- Complete Configurations
- Individual CPU's-Peripherals
- Memory Upgrades and Feature Enhancements
- Classic and Spectrum Equipment

WE BUY
Highest Prices Paid

WE SELL
*All Items Sold Are Guaranteed for HP Maintenance
*Short and Long Term Leases Available

WE TRADE
Over 1000 satisfied Hewlett-Packard users are our customer references throughout the United States, Canada, Europe, and the Far East.



C.S.U. Industries, Inc.
135 Rockaway Turnpike, Lawrence, NY 11559
Ask for Mord: (516) 239-4310 FAX (516) 239-8374

OUR 15TH YEAR

CIRCLE 205 ON READER CARD

NOW AVAILABLE

SONIC DIGITIZERS

The lightweight, compact GP-9 is the new professional standard in digitizers. Installation and configuration to emulate any digitizer can be done with a simple menu drive program.

SPECIAL FEATURES

- *Digitize up to 36" x 48"
- *No Tablet Needed
- *Portable
- *32 Function Programmable Template
- *Low Price



**TED DASHER
& ASSOCIATES**

4117 Second Ave. So.
Birmingham AL 35222
(205) 591-4747
Fax: (205) 591-1108
(800) 638-4833

CIRCLE 174 ON READER CARD

HEWLETT-PACKARD

1000 • 3000 • 9000

BUY * SELL * RENT * LEASE

MAINTENANCE

PROCESSORS • PERIPHERALS • SYSTEMS

EURODATA INC.

(613) 745-0921

Fax: (613) 745-1172

2574 Sheffield Road, Ottawa, Canada K1B 3V7

CIRCLE 283 ON READER CARD

HEWLETT-PACKARD

BUY
and
SELL

REPAIR
and
SERVICE

ADVANT

Computer Exchange

HP Systems Specialists

US (800) 824-8418

CA (415) 623-1733

FAX (415) 623-1736

CIRCLE 202 ON READER CARD

Ideal

Computer

Services

ICS

**BUY • SELL • SUPPORT
Hewlett Packard**

**922LX
IN STOCK!
\$24,000**

510-447-4747 FAX 510-447-4780

CIRCLE 297 ON READER CARD

HP 3000

Buy — Sell — Trade
Hewlett Packard Equipment

CALL

713-690-1100

(Fax) 713-690-1130

**Surety
Systems**

8600 Jameel Road, Suite 120
Houston, TX 77040

CIRCLE 226 ON READER CARD

Worth writing for.

If you're looking for some good reading, you've just found it. The free Consumer Information Catalog.

The Catalog lists about 200 federal publications, many of them free. They can help you eat right, manage your money, stay healthy, plan your child's education, learn about federal benefits and more.

So sharpen your pencil. Write for the free Consumer Information Catalog. And get reading worth writing for.

**Consumer Information Center
Department RW
Pueblo, Colorado 81009**

U.S. General Services Administration.

TUNE INTO HP

Pre-owned Equipment

3000 Peripherals 9000
• • • • •
BUY SELL TRADE

WORKSTATIONS
CPUs
DISC & TAPE DRIVES
TERMINALS & PRINTERS
3000/9000 MEMORY

**Lynne
Company**

(Calif) 805-489-1564

(Outside Calif) 1-800-338-5019

(Fax) 805-481-3799

CIRCLE 219 ON READER CARD

BUY • SELL • TRADE

COMPLETE HP SYSTEMS AVAILABLE

ALL PERIPHERALS

*All items in stock — immediate delivery
All warranted to qualify for
manufacturer's maintenance.*

ConAm Corporation

Canada/US 800-926-6264

California 510-419-2200

FAX 510-419-2275

RENT • LEASE

CIRCLE 210 ON READER CARD

INFORMATION

Rates: 1 time: \$500
3 times: \$450
6 times: \$400
12 times: \$350

COLOR NOW AVAILABLE—\$100

Size: 1/9 page — 2 3/16" x 2 3/4"

Typesetting and composition
available.

Camera ready mechanical required.

For more information call:

Jane Hope
(215) 957-4221

Benson, Douglas & Associates, Inc. is an established leader in the computer consulting industry. Our steady growth has created the need for us to expand our staff. We are currently looking for professionals with experience in the following disciplines to join our winning team:

TRANSACT	SPEEDWARE	MM
FORTRAN	POWERHOUSE	ASK
PMS	COBOL	AMAPS
PROTOS	JOBSCOPE	MOMS
MRP/CUSTOMIZER		PM
HPUX	X-WINDOWS	MOTIF C

BD&A offers competitive salaries and an exceptional benefits package that includes **medical/dental insurance**, 401K plan, vacation pay, and paid holidays. Call or send resumes to: (ref HP0392)

113 Edinburgh S. #104
Cary, NC 27511
(800) 525-2927 Fax: (919) 467-7688



An Equal Opportunity Employer

CIRCLE 263 ON READER CARD

HP CAREERS NATIONWIDE

Put your valuable **career** or **job opening** in the hands of the experienced HP recruiter who is heavily involved in **YOUR** industry!!!

- Professional Recruiter since 1975
- Certified Personnel Consultant (CPC)
- Author of "Peopleware" articles
- Speaker at INTEREX, ICMS and HP RUGS
- RUG Council Member and ACSC Rep
- Nationwide database of over 10,000 HP contacts
- Networked nationally for all geographic locations

Call - Amos & Associates



Diane Amos, C.P.C.

633-B Chapel Hill Road
Burlington, N.C. 27215
(919)-222-0231
Fax: (919)-222-1214

CIRCLE 204 ON READER CARD

HP OPPORTUNITIES!

HP TALENT

- Have the talent?
- Need a challenge?

HP MANAGERS

- Have challenges?
- Need talent?

WENDY W. LINDSAY

REAL EXPERIENCE MAKES A DIFFERENCE

CALL TODAY!



Personnel Placement, Inc.

12 Yrs. IS
10 Yrs. HP
6 Yrs. Mgmt.
I understand your needs.

SINCE 1975
800-677-0490
Located in the Sunbelt

CIRCLE 224 ON READER CARD

Why WTW?

Because You're The Best

Wesson, Taylor, Wells — one of the nation's premiere software consulting firms — needs superior programmer/analysts with application development expertise in any HP environment.

Stability: Choose to work full-time with excellent salary and benefits or on an hourly basis.

Professional Growth: Expand your horizons by developing state-of-the-art systems.

Diversity: Escape the routine by contributing to the success of challenging projects for varied clients.

If you have the expertise we demand and need a career without limits, take charge. Contact WTW today. Confront your future.

1-800-833-2894

An equal opportunity employer.



CIRCLE 231 ON READER CARD

Senior programmer/analysts needed with 2 years or more of application development expertise in an HP environment.

- | | |
|--------------|--------------|
| ▲ TRANSACT | ▲ ORACLE |
| ▲ POWERHOUSE | ▲ OMNIDEX |
| ▲ SPEEDWARE | ▲ MM/3000 |
| ▲ PROTOS | ▲ PM/3000 |
| ▲ COBOL | ▲ CUSTOMIZER |
| ▲ FORTRAN | ▲ MANMAN |
| ▲ HP-UX | ▲ OMAR |

Send your resume immediately or call today:

Wesson, Taylor, Wells
P.O. Box 12274
Research Triangle Park, NC
27709-2274

1-800-833-2894

An equal opportunity employer.

When You're The Best At HP

Try WTW!

CIRCLE 180 ON READER CARD

ISCI

ISCI is one of the fastest growing software development firms. We have immediate and upcoming needs in any of the following skill sets. Contact our nearest office today.

Operating Systems: MPE, MPE/XL, UNIX, HP3000, HP9000, HP1000.

Skill Sets: COBOL, IMAGE, ALLBASE, SYBASE, POWERHOUSE, SPEEDWARE, ORACLE, INFORMIX, FORTRAN, C.

Software: MM3000, PM3000, PO3000, JOBSCOPE, MITCHELL HUMPHREY, ASK, HP/FA, MCBA.

INTERNATIONAL SOFTWARE CONSULTANTS, INC.

- **Southern Sales Region:**
2900 Chamblee-Tucker Rd., Bldg. 7,
Atlanta GA 30341, (404) 454-5969
- **Midwest Sales Region:**
9518 Palmetto St., New Orleans, LA
70118, (504) 456-4960
- **Northern Sales Region:**
P. O. Box 3561, Wayne, NJ, 07474-
3561, (201) 694-3901

CIRCLE 292 ON READER CARD

SOFTWARE

HP Professional Postcard Decks

- Reach over 35,000 HP and HP/Apollo Computing Pros
- Three 1992 Decks - January, April, September
- Call Mary Browarek at (215) 957-4225 to reserve your card.

HP Professional

3094-03/92PC

Hewlett-Packard
BASIC
Rocky Mountain



**Translate HP
Rocky Mountain BASIC
to
Microsoft C 6.0
on a PC**

Call
for
quote, demo

708/554-3567
FAX 708/554-3570

**OSWEGO
SOFTWARE**
Box 310
Oswego, IL 60543

CIRCLE 223 ON READER CARD

ADVERTISERS INDEX

Reader Service Number	Page	Reader Service Number	Page
104 Adager	46	470 IXI Corporation	37
163 Aldon Computer Group	76	185 Kelly Computer Systems	41
105 Bering Industries	17	230 Keyword Office Technologies Ltd.	21
171 Black River Computers	68	466 Ki Research, Inc.	I.B.COVER
108 Bradmark Technologies, Inc.	32	281 Kingston Technology Corp.	65
294 Camintonn Corporation	39	155 M.B. Foster Associates	87
153 Cardinal Data Corp.	79	220 Martech	55
467 Central Data	31	493 MESA Technology	57
102 Chestnut Data		465 MICOM Communications Corp.	25
101 Computech Systems Corp.	72	472 Minisoft, Inc.	4
167 Computer Solutions, Inc.	78	154 Mitchell Humphrey & Co.	71
112 Contemporary Cybernetics Group	19	488 Newport Digital Corporation	11
160 Cort Directions	88	246 Newport Digital Corporation	9
242 Cumulus Technology Corp.	40	161 NSD, Inc.	6-7
476 Datability, Inc.	64	258 O'Pin Systems	5
240 Dataram Corporation	15	489 Oregon Digital Computer Products, Inc.	90
239 Devcom Mid-America, Inc.	55	485 Proactive Systems	69
113 Dynamic Information Systems Corp.	23	Professional Press Books	66
115 Equinox Systems, Inc.	75	Professional Press Books	86
119 Herstal Automation, Ltd.	77	268 Quest Software	34-35
199 Hewlett Packard/Worldwide Customer Svc.	13	148 RGB Spectrum	85
118 Hewlett Packard/Worldwide Customer Svc.	43	134 Rocky Mountain RUG	42
279 Hi-Comp America, Inc.	51	497 Smith, Dennis & Gaylord, Inc.	59
120 Hi-Comp America, Inc.	68	137 TSA	91
486 Hillary Software, Inc.	73	456 Tynlabs Corp.	1
122 IEM, Inc.	2	243 Tynlabs Corp.	26-27
196 Infotek Systems	12	265 Tynlabs Corp.	44-45
181 Infotek Systems	I.F.COVER	141 Tynlabs Corp.	89
214 Interactive Software Systems	67	145 Walker Richer & Quinn, Inc.	53
129 IOtech	51	222 Walker Richer & Quinn, Inc.	90
245 ISA CO. LTD./Texas ISA, Inc. ..	63	127 Walker Richer & Quinn, Inc.	B.COVER

ADVERTISING SALES OFFICES

Leslie Ringe, Associate Publisher
(617) 861-1994

CANADA

(215) 957-1500

Helen B. Marbach, Regional Sales Manager
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

NEW ENGLAND

(617) 861-1994

Alonna Doucette, Regional Sales Manager
Niki Amin, Account Executive
238 Bedford St., Ste. 3
Lexington, MA 02173
FAX (617) 861-7707

MID-ATLANTIC

(215) 957-1500

Mark Durrick, Eastern Regional Manager
Mike Friedenberg, Account Executive
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

MIDWEST & SOUTH

(215) 957-1500

Peter Senft, Regional Sales Manager
101 Witmer Road
Horsham, PA 19044
FAX (215) 957-4264

NORTHERN CALIFORNIA & NORTHWEST

(415) 873-3368

Judy Courtney, Regional Sales Manager
903 Sneath Ln., Ste. 220
San Bruno, CA 94066
FAX (415) 873-6608

SOUTHERN CALIFORNIA & SOUTHWEST

(818) 577-5970

Karin Altonaga, Regional Sales Manager
Mary Marbach, Regional Sales Manager
1010 E. Union St., Ste. 101
Pasadena, CA 91106
FAX (818) 577-0073

INTERNATIONAL

(617) 861-1994

Leslie Ringe, Regional Sales Manager
Niki Amin, Account Executive
238 Bedford St., Ste. 3
Lexington, MA 02173
FAX (617) 861-7707

(215) 957-1500

Cheryl Bortman, Marketing Services Manager
Lisa Schmutz, Marketing Services Assistant
Mary Browarek, Card Deck Manager
Cathy Dodies, List Rental Manager
Jane L. Hope, List Rental Sales

C O M I N G I N M A Y . . .

Editorial Focus -- OBJECT ORIENTATION

- Object-Oriented Programming
- Object-Oriented GUIs
- Object-Oriented Databases

SPACE CLOSING: 4/8

MATERIALS DUE: 4/13

Bonus Distribution:

BARUG

5/7-8/92

Interop East

5/18-22/92

HP Professional

kiNET IS YOUR BRIDGE TO THE FUTURE.

Bridging your UNIX and DEC worlds

"Users migrating to Unix from VMS™ do not have to learn any new commands with kiNET™."

—Digital Review Labs, 1/28/91

kiNET is the most complete DEC connectivity product available today.

A most complete DEC/Unix connectivity product, kiNET provides VT340 emulation from Pericom Software, DEC Windows over DECnet, high speed and CPU efficient file transfer, LAT Terminal and Print Services, and file backup your VAX tape drives, complete Network Management and MOP facilities.

kiNET provides the comprehensive power of DECnet Network Management for all your Unix systems.

You can use your complete and existing DECnet Network Management facilities instead of relying on TCP/IP's Inadequate Network Management. If you are looking for a way to integrate and network manage your Unix and DEC systems and do not want to suffer the inadequacies of TCP/IP, use kiNET.

Not only does kiNET provide complete support for network management protocols including NCP and MOP capabilities, kiNET is also available on 28 different vendor platforms including IBM OS/2 and RISC System 6000, SGI, Mips, Sun 3 and 4, Sequent, Star Technology, Modcomp, Hewlett Packard 9000 series, Cray Research ELC, Harris, Tandem, Alliant and Data General's AViiON and MV Series.

OSI migration path is available with kiNET.

Those DECnet sites looking for a migration path to OSI for their DEC and Unix systems, look no further. Our kiNET release will contain OSI capabilities by mid-1992 and at no additional charge.

Easy to use and install.

kiNET has the distinct advantage of letting VMS users and system managers become immediately productive on their Unix systems.

ki Research's kiNET installation is menu-driven and extremely easy to complete. No Unix expertise or previous DECnet/LAT experience is required.

Versatile, too, kiNET Saves You Time and Money.

kiNET allows full utilization of your current VAX systems and LAT Terminal Servers without requiring you to invest substantially more money for VAX TCP/IP software or for TCP/IP training for System Managers or multiple protocol terminal servers.

Newly released kiNET features.

kiNET now has Level 1 and Level 2 DECnet routing. Async DDCCMP Support, full support for incoming DECnet NCP commands via NML object, LAT Terminal Server Management, LAT Process Environment defined including Ethernet address of the remote LAT device, port name, and the name of the remote LAT device, LATtelnet Gateway which allows LAT users access to any telnet host, and sethost scripting which allows users to perform many "set host" operations automatically via a script file.

Helpful and courteous support.

Our 24-hour, seven-day-a-week, half-hour support response is both helpful and courteous.

Visit us at our DEXPO booths, ki Research's # 2025 and IBM's # 1554, and see for yourself how kiNET bridges your UNIX and DEC worlds.



CIRCLE 466 ON READER CARD

kiNET is a trademark of ki Research, Inc.

DEC, DEC Windows, DDCCMP, LAT, Ultrix, VMS and VAX are trademarks of Digital Equipment Corp.

1-800-945-4454 or 301-553-0181

Please call for more information and a no-obligation 30-day free trial of kiNET

See the Newest Versions of
Reflection for DOS, Windows
and the Macintosh
at ICMS, Booths 65 & 66



Your passport to multivendor connectivity.

The borders are opening. The single-vendor world is no more. Move freely through new territory with Reflection® and Reflection Network Series™ software.

For terminal emulation choose Reflection, the finest text and graphics emulators in the HP 3000 environment. Select from HP terminal emulators for DOS, Macintosh, and MS-Windows. With fast, accurate file transfer, complete keyboard mapping, and a powerful command language, it pays to go with the market leader.

Cross network barriers with a number of solutions. Reflection offers options from simple datacomm choices to

extensive support for proprietary and non-proprietary transport connections and for LANs.

Move to complete connectivity with the Reflection Network Series. Link PCs with all your hosts and servers over any network—no DTCs or gateways are required. Run multiple protocols from a single PC, and switch among them without rebooting. Access HP, UNIX, Digital VAX, and IBM hosts concurrently, along with Novell and other LANs.

Reflection and the Reflection Network Series—more choices for a changing world.

NEW—Version 3.7 Reflection 1 for Windows

- DDE Support
- 132-Column Support
- Color Configuration
- Keyboard Mapping
- Connection Manager
- Enhanced Print Management

AdvanceLink/ Business Session users can upgrade for \$150.* Current Reflection users call for your special update offer.

1-800-92NETWORK

*Offer good in the U.S. for a limited time only. Add shipping and sales tax where applicable.

REFLECTION
SERIES 4
SOFTWARE

CIRCLE 127 ON READER CARD

Walker Richer & Quinn, Inc.